

Manufacturers Record

Reg. U. S. Patent Office



JUNE, 1936

BALTIMORE, MD.

UNEMPLOYMENT ANALYZED

The Administration has laid the problem of unemployment in the lap of private industry. A survey by the New York Sun shows this responsibility is wrongly placed and that out of the estimated twelve million total unemployed, not more than three and a half million can be attributed to industry, including mining, trade and transportation.

This figure is analyzed as follows:

Unemployed:	
In Manufacturing	1,632,700
In Trade	none
In Mining	269,600
In Transportation and Communication	1,490,700
Total	3,393,000

The conclusion is clearly drawn that if twelve million are unemployed, the bulk of the remaining eight and a half million must be attributed to agriculture, where the Government has practiced an economics of scarcity, and to domestic service.

The Sun's figures, more fully analyzed elsewhere in this issue, are confirmed independently by the Government's own statistics on Relief, and point inescapably to a major fallacy in New Deal theories.



Ask the operator...

Ask the Boss...

THEY'LL TELL YOU WHY IT'S

Quick, easy starting—even in sub-zero weather when other equipment can't be moved . . . sure control and non-skid traction for sharp turns, steep pitches and soft, wet ground . . . no wonder the "Caterpillar" Diesel Tractor is first choice with drivers. Owners choose it for the remarkable cost records that back up its performance . . . earth moved at a few cents per yard . . . bulldozing, scraping, hauling at 60 to 80% reduction in fuel costs . . . maintenance costs at a record low level in spite of hard usage and 24-hour service. It's the power SHOW-DOWN—get the details from a dealer. Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

This "Caterpillar" Diesel Tractor hauls big loads from a shovel for a few cents an hour on a coal-stripping operation in Penna.

FIRST

HARD FACTS ON THE SHOW-DOWN:

Report from a Massachusetts highway job: "Our 'Caterpillar' Diesel Tractor hauls two 12-yard wagons on a 1200-ft. haul from borrow pit to fill. The average round trip is completed in 12½ minutes, in spite of a 20% grade for part of the trip."

Says a Pennsylvania owner: "Our first six 'Caterpillar' Diesel Tractors have worked more than 8500 hours each and are still setting records for low-cost operation."

Diesel



THERE is A DIFFERENCE IN PUMPS

Mechanically and metallurgically, there are great differences in metals and the way they are fashioned into the finished pump. Look, for instance, at the hard, smooth volutes in F-M centrifugals. No filing mars their hard surface to expose softer, untempered metal. The castings were made *right* at the start.

In design, the differences are myriad. Fairbanks-Morse was the first to streamline its impellers—first to pioneer many

invisible refinements that show their value in higher performances, higher efficiencies.

Will your pump dollar buy these extra values in better design, in better manufacture? It WILL, when you specify Fairbanks-Morse.

For full information on F-M pumps for every purpose, address Department I-31, Fairbanks, Morse & Co., 900 S. Wabash Avenue, Chicago, Ill. 34 branches at your service throughout the United States.

6700 PA40.36



FAIRBANKS - MORSE

Pumps



POWER, PUMPING AND WEIGHING EQUIPMENT

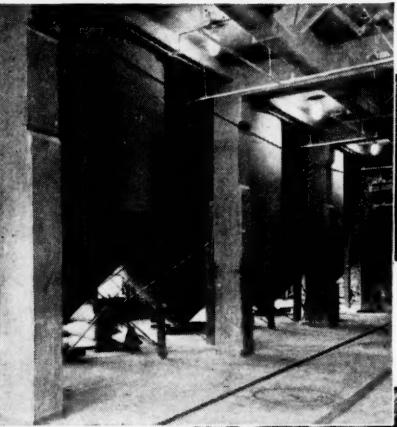
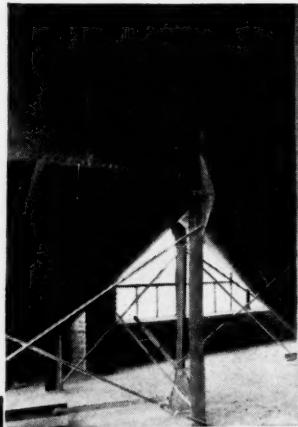
Entered as second-class matter at the postoffice, Baltimore, Md., under the act of March 3, 1879, Volume CV, No. 6 Monthly
JUNE NINETEEN THIRTY-SIX

TANKS and Steel Platework for industrial plants

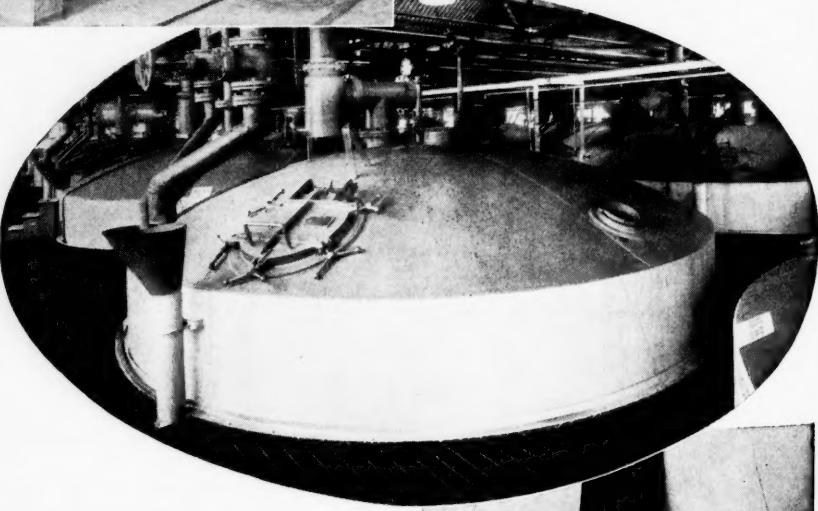
We are equipped to design, fabricate and erect steel tanks and steel plate work of all kinds for industrial service. The accompanying illustrations show typical installations. They are all located at the same plant.

ELEVATED TANKS are built in a complete range of standard capacities. **STORAGE TANKS** are available in standard and special designs of riveted or welded construction. **SPECIAL STRUCTURES** such as bins, hoppers, fermenters, etc. are designed to meet your requirements. Write our nearest office for information or quotations.

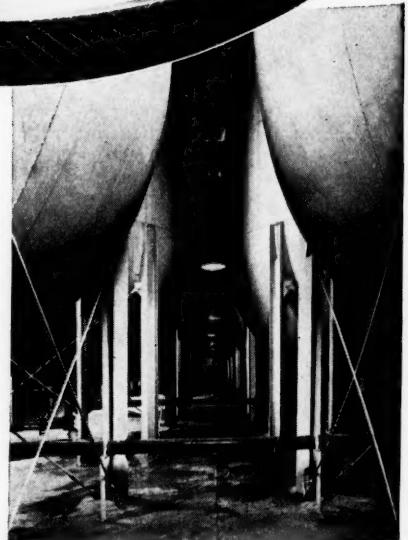
Conical-bottom
grain bins 14
ft. in diameter
by 25 ft. high.



30,000 gallon elevated tank providing gravity water pressure for general service. Similar installations are also used to provide water for fire protection.



Left: 11 ft. diameter ground grain bins with hopper bottoms. Above: View across the top of a group of welded fermenters 20 ft. in diameter. Right: Lower part of the fermenters shown above.



CHICAGO BRIDGE AND IRON WORKS

Birmingham 1530 North Fiftieth St.
Dallas 1408 Dallas Athletic Club Bldg.
Houston 2919 Main Street
Tulsa 1611 Thompson Bldg.
New York 3313-165 Broadway Bldg.
Cleveland 2216 Rockefeller Bldg.

Chicago 2106 Old Colony Bldg.
San Francisco 1040 Rialto Bldg.
Philadelphia 1619-1700 Walnut Street Bldg.
Detroit 1510 Lafayette Bldg.
Boston 1510 Consolidated Gas Bldg.
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JUNE
1936

MANUFACTURERS RECORD

Devoted to the Upbuilding of the Nation Through the Development of the South and Southwest as the Nation's Greatest Material Asset

Published Monthly

by the

**MANUFACTURERS RECORD
PUBLISHING CO.**

Frank Gould, President

Main Office: Manufacturers Record Building, Commerce and Water Streets, Baltimore, Md.

Branch Offices:

New York—11 W. 42nd St.

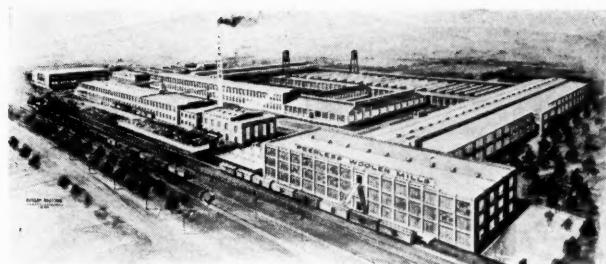
Chicago—28 East Jackson Blvd., Room 1510

Subscription Rate: \$2.00 a year (in advance). Single copies, 25c; back numbers, one to six months, 50c each; over six months, \$1.00. Combination rate for Manufacturers Record and Daily Construction Bulletin, \$10.50 a year.

Subscribers are asked to notify us of change in address to avoid delay in service.

PUBLISHERS DAILY CONSTRUCTION BULLETIN AND BLUE BOOK OF SOUTHERN PROGRESS

Member
A.B.C.



How Rossville (Ga.) Peerless Woolen Mills Will Appear
When \$400,000 Improvements Now Under Way Are Finished

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NEW TONNAGE RECORDS

The great forward progress achieved by HEWITT in producing conveyor belts is expressed in new tonnage records being established throughout industry. For every need, new properties are being compounded. Extra rugged strength is built in that defies the most gruelling, abusive service. Produced under the most rigid of standards by the company that makes industrial rubber goods, exclusively, every conveyor belt bearing the brand of HEWITT is a masterpiece in craftsmanship—a guarantee of star performance. If you are interested in lowering production or operating costs, listen to the HEWITT story. HEWITT distributors are near at hand, listed in the classified telephone directories in industrial centers under "Rubber Goods" or "Belting".

HEWITT
RUBBER CORPORATION, BUFFALO, N. Y.

...ask about the HEWITT PROOF TEST PLAN

HOSE • CONVEYOR AND TRANSMISSION BELTS • PACKING



USE DU PONT GELATINS

DU PONT Gelatins are dense, waterproof, plastic. Their high velocity gives a strong, shattering action.

For underground work duPont Straight Gelatins and du Pont Special Gelatins give maximum efficiency and minimum of noxious gases.

For submarine blasting Hi-Velocity Gelatins are a new and exclusive duPont development.

DU PONT SERVICE

Since 1802 we have had practical experience in the manufacture, development and use of explosives. This experience we will gladly share with you. Our technical staff will give you whatever assistance you may need to assure you the best possible results.

E. I. DU PONT DE NEMOURS & CO., INC.

Explosives Department, Wilmington, Del.

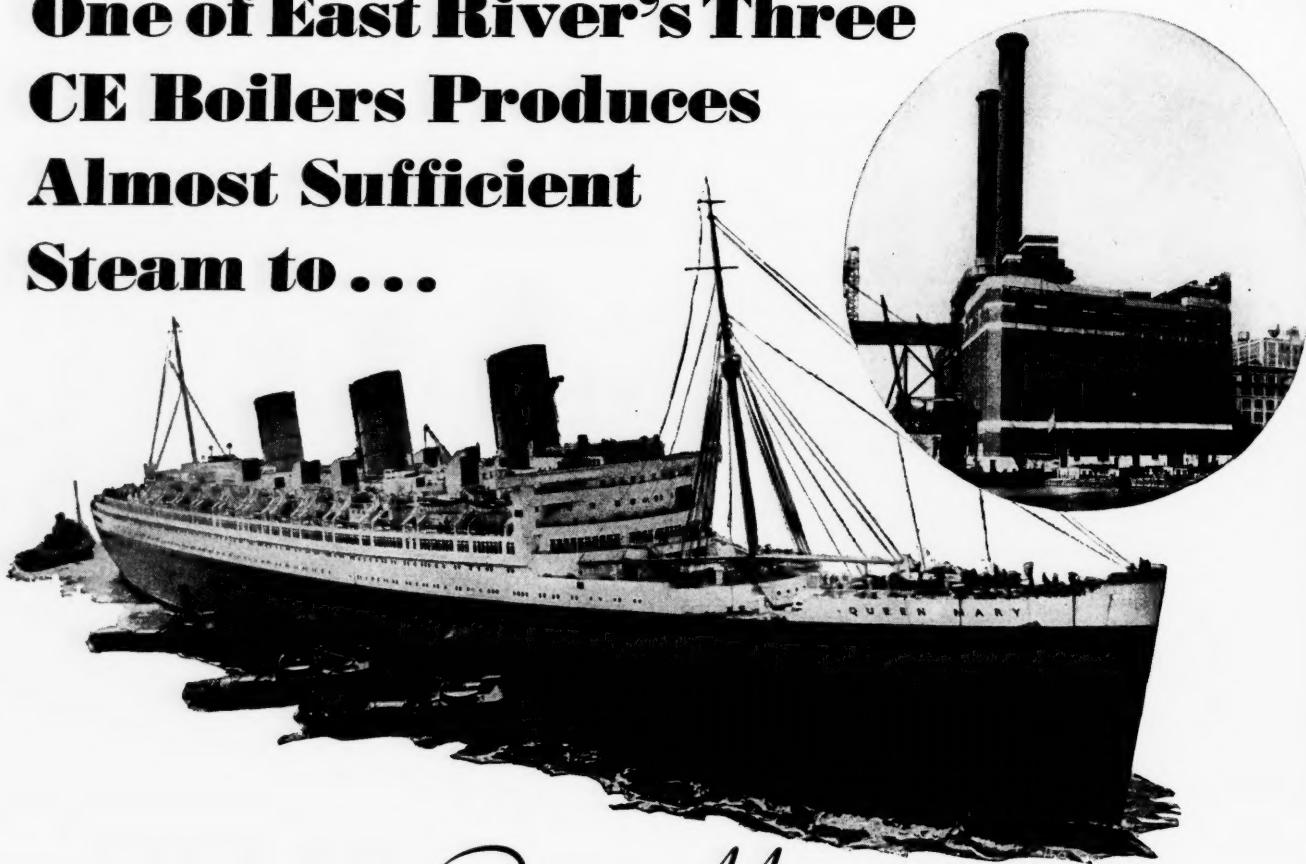
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GELATIN DYNAMITES

JUNE NINETEEN THIRTY-SIX

One of East River's Three CE Boilers Produces Almost Sufficient Steam to...



... DRIVE THE *Queen Mary* AT FULL SPEED

ACCORDING to published information, the steam requirement for driving the super-liner "Queen Mary" at full speed can be computed as approximately 1,500,000 lb per hr. Designed in accordance with present-day marine practice, the boiler plant of the Queen Mary includes 24 water tube boilers and 3 fire tube boilers, the former being used to drive the ship.

As we marvel at the most powerful passenger ship afloat, it is interesting to note that in the East River Station of the New York Edison Company there are three Combustion Engineering boilers, the most recently installed boilers in the station, each of which is capable of producing 1,270,000 lb of steam per hr—almost enough steam to drive the Queen Mary at full speed.

Not only New York Edison but Detroit Edison, Brooklyn Edison, Milwaukee Electric, Public Service of New Jersey and many other utility companies have selected CE equipment for their most recent installations. Leading manufacturers too... Chevrolet, DuPont, Chrysler, Colgate-Palmolive-Peet, Ford and many others have ordered and re-ordered CE equipment in recent years.

When you build a new boiler plant or remodel your present one, you, too, can have the efficiency and economy of CE equipment, no matter how modest your requirements. The CE line is the most complete in the industry, providing adequately for all steam requirements except domestic—from 30 hp boilers and small stokers up to gigantic units such as those installed at East River. . . . Combustion Engineering Company, Inc., 200 Madison Ave., New York.



COMBUSTION ENGINEERING

MANUFACTURERS RECORD FOR

Trucks or Delivery Units . . . Fleet Owners select CHEVROLET for Power and Economy



CHEVROLET TRUCKS
prove stamina and record-breaking economy in amazing coast-to-coast run



Look at this great record

Location of Test . . . Los Angeles to New York
Distance Traveled . . . 3511.5 miles
Running Time . . . 129 hours, 24 minutes
Average Speed . . . 27.14 miles per hour
Gasoline Used . . . 308.6 gallons
Gasoline, miles per gallon . . . 11.378
Oil Consumption . . . 2 quarts
Cost of Fuel . . . \$57.59
Cost of Oil . . . \$8.67
Fuel and Oil (cost per mile) . . . \$0.016
Average cost per ton mile . . . \$0.00328
Water Consumption . . . 1 gallon
No mechanical failures

Entire test conducted under supervision
of A. A. A. Contest Board—
Sanction No. 3300.



FOR ECONOMICAL TRANSPORTATION

THE CHARLES E. HIRES CO., nationally prominent manufacturers of famous Hires Root Beer, provides another example of how fleet users have recognized the outstanding economy and the great and dependable power of Chevrolet trucks and delivery units. Quoting from a statement made by this company:

"We selected the Chevrolet Sedan Delivery because it was economical in operating cost, provided ample room for carrying dealer display advertising and samples of our products, and afforded a desirable source of advertising."

"In addition to the Sedan Delivery cars (59), we have ten half-ton Panel trucks and six 1½-ton trucks for delivery work—a total of 75 Chevrolet units in our fleet."

"Our average cost ran a trifle in excess of 3.6c per mile, including depreciation on a 3½-year basis, licenses, insurance, storage, washing and the ordinary operating expenses."

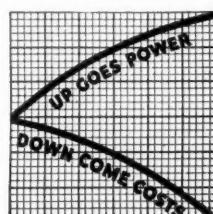
Chevrolet trucks are the world's *thriftiest high-powered trucks*—as fleet owners the country over are discovering! So, if you haven't already done so, get the facts on how powerful, dependable and economical 1936 Chevrolet trucks can reduce your haulage and delivery costs. Your Chevrolet dealer will co-operate with a demonstration—on your jobs!

CHEVROLET MOTOR COMPANY, DETROIT, MICHIGAN

GENERAL MOTORS INSTALLMENT PLAN—
MONTHLY PAYMENTS TO SUIT YOUR PURSE

CHEVROLET TRUCKS

JUNE NINETEEN THIRTY-SIX



BECAUSE WOMEN LIKED KETTLES



IT IS TRUE that a man, and a bachelor at that, made the first commercial Aluminum. But it was the women of America who first gave it commercial importance. It seems incredible that, only fifty years ago, few homes in America contained a single ounce of Aluminum in any form. Today Aluminum ranks fifth in the great family of common metals. In the homes of 1936 there is hardly a room in which Aluminum is not serving, visibly or invisibly.

It all began with a teakettle.

Timidly, because men are creatures of habit and tradition, the young Aluminum industry ventured to make a teakettle of the new metal, because it would conduct heat so much faster than the older metals. The kettles were offered to women with some trepidation.

But women are bold spirits! They liked the kettles! The mere fact that the metal itself was new and comparatively unheard of, meant less than nothing to them, so long as they got results. They liked the kettles and they demanded other Aluminum cooking utensils that were light and bright and friendly to food.

This preference for lightness and brightness was quickly recognized by the men in the aggressive young electrical industry. Thanks to their enterprise, the teakettle and the shining Aluminum pots and

pans soon had labor-saving electrical appliances as working companions.

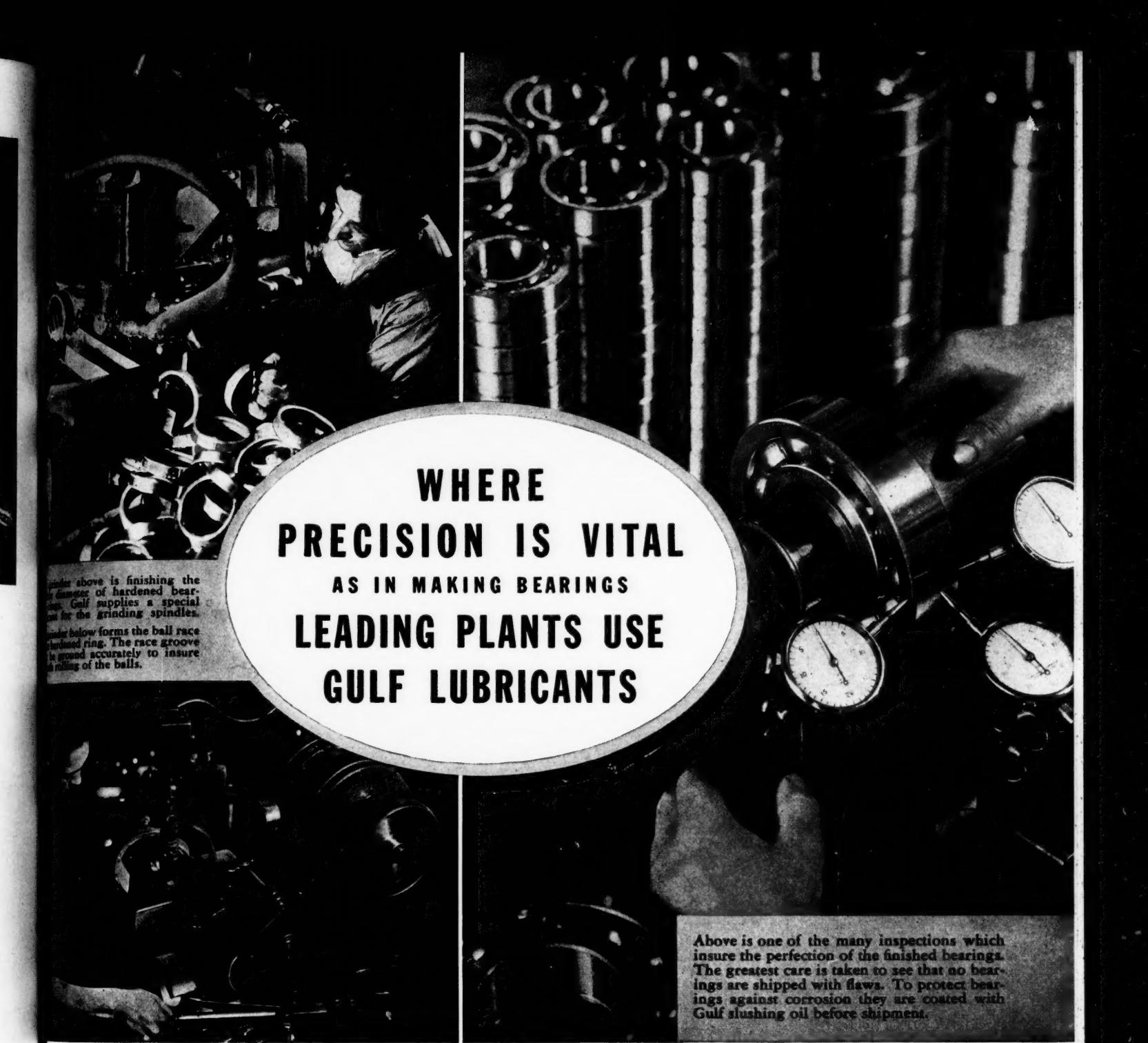
The electric vacuum cleaner, the drudgery-banishing electric washing machine, the smart electric waffle mold, and a score of other electrical appliances for easier and more gracious homekeeping, all made use of one or more of the advantages of this versatile metal. With the coming of electric refrigeration, ice cube trays were made of Aluminum to speed freezing.

It took more to make an industry than the discovery by Charles Martin Hall, in 1886, of an economical process for extracting Aluminum from the common mineral, bauxite. It took long, plodding years of research, and scientific and manufacturing development, to attain the strong capable alloys of today. Also it took generous co-operation from the engineering profession and the metal-working industry.

But when we who work in Aluminum are tempted to pride ourselves on the progress the industry has made in a brief half century, we are made properly humble by the realization that the modern streamline trains, the motor trucks and buses, the building facades now being constructed of Aluminum, are a tribute to the audacity of the homemakers of America; to them and to the enterprising household utility industries which have grown up to serve them.

A FIFTIETH ANNIVERSARY MESSAGE FROM

ALUMINUM COMPANY OF AMERICA



WHERE
PRECISION IS VITAL
AS IN MAKING BEARINGS
LEADING PLANTS USE
GULF LUBRICANTS

Under above is finishing the
diameter of hardened bearing
rings. Gulf supplies a special
oil for the grinding spindles.
Under below forms the ball race
finished ring. The race groove
is ground accurately to insure
rolling of the balls.

Above is one of the many inspections which
insure the perfection of the finished bearings.
The greatest care is taken to see that no bearings
are shipped with flaws. To protect bearings
against corrosion they are coated with
Gulf slushing oil before shipment.

Twenty Bearing Plants in U. S. Rely on Gulf Quality Lubricants to Maintain Costly Equipment at Peak Efficiency

That is a real tribute to the quality of Gulf oils and greases! In bearings plants—where precision work is vital—lubricants must provide sure protection against friction and wear to keep adjustments right and to assure proper alignment.

Metal working plants of all types are standardizing on Gulf products as a safety measure.

Gulf's complete line of more than 400 oils and greases permits the selection of exactly the right type of lubricant for each machine and moving part—the oil or grease which reduces friction to a minimum. If you are not using Gulf lubricants, give them a trial. You will be pleased with the economies which accompany their use.

GULF OIL CORPORATION OF PENNSYLVANIA
GULF REFINING COMPANY, General Offices, Gulf Bldg., Pittsburgh, Pa.

MAKERS OF THAT GOOD GULF GASOLINE AND GULFLUBE MOTOR OIL



CAST IRON *is the standard material for water mains*

The following tabulation shows the percentage of cast iron pipe used in the water distribution systems of the 15 largest cities in the United States as reported in 1935 by their Water Departments.

CITY	PERCENTAGE
New York	97.2
Chicago	100.0
Philadelphia	98.3
Detroit	98.7
Los Angeles	74.0
Cleveland	98.9
St. Louis	98.7
Baltimore	99.7
Boston	99.8
Pittsburgh	97.9
San Francisco	76.8
Milwaukee	100.0
Buffalo	99.8
Washington D.C.	98.8
Minneapolis	95.8



Our 15 largest cities depend almost exclusively on cast iron pipe for water distribution mains

ONE of the greatest investments in public service made by any community, large or small, is in pipe for water mains, the cost of installing it, and the pavements which cover it. More than 95% of the pipe which distributes water to the 24 million residents of our 15 largest cities is cast iron pipe. The reason is that cast iron pipe can be laid and forgotten for a century. It is not only the most economical measured by length of service but in maintenance cost and street repairs as well.

Cast iron is the standard material for water mains. Its useful life is *more than a century* because of its effective resistance to rust. It is the one ferrous metal pipe for water and gas mains, and for sewer construction, that will not disintegrate from rust. Available in diameters from 1 1/4 to 84 inches. For further information, address The Cast Iron Pipe Research Association, Thos. F. Wolfe, Research Engineer, 1015 Peoples Gas Building, Chicago, Illinois.

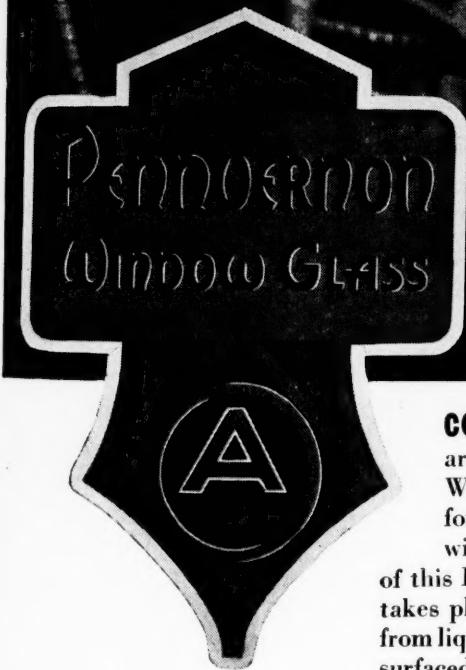
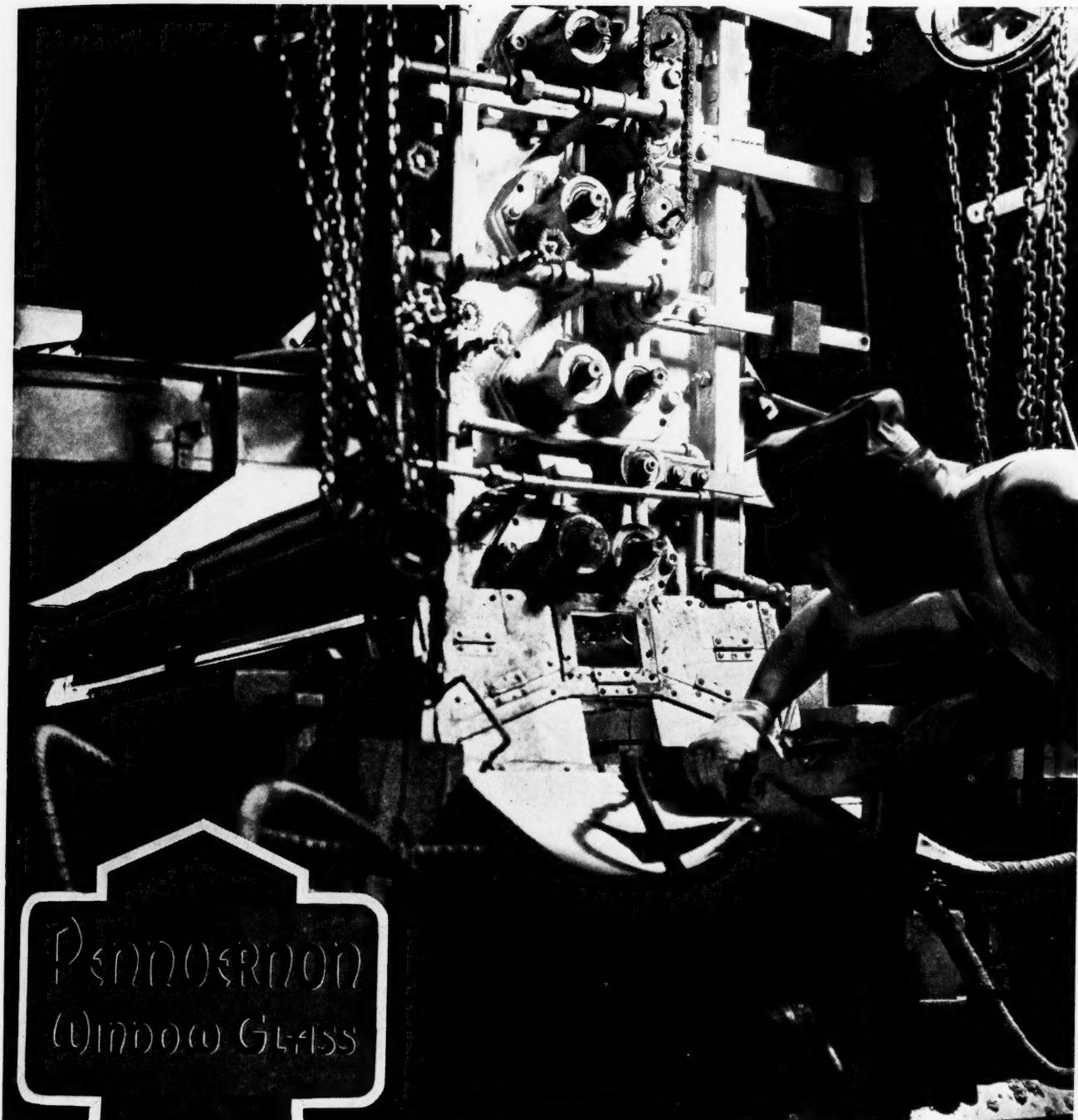
CAST IRON PIPE

METHODS OF EVALUATING BIDS NOW IN USE BY ENGINEERS



RATE THE USEFUL LIFE OF CAST IRON PIPE AT 100 YEARS

Use "Pennvernon" . . . not just "window glass"



COOLED PAST POSSIBLE INJURY
are the surfaces of Pennvernon Window Glass before any rolls or foreign substances come in contact with them. Under the watchful eye of this Pennvernon Craftsman, a miracle takes place. Pennvernon is transformed from liquid, white-hot "metal" to brilliant-surfaced, unmarred sheets of clear glass!

Our new booklet, called "The Making of a Leader", describes in dramatic pictures the manufacture of Pennvernon Window Glass. To get your free copy of this interesting book, sign and mail this coupon to

**PITTSBURGH
PLATE GLASS COMPANY**
2235B Grant Building, Pittsburgh, Pa.

Name _____

Address _____

City _____ State _____

CAST IRON *is the standard material for water mains*

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San Francisco	76.8
Milwaukee	100.0
Buffalo	99.8
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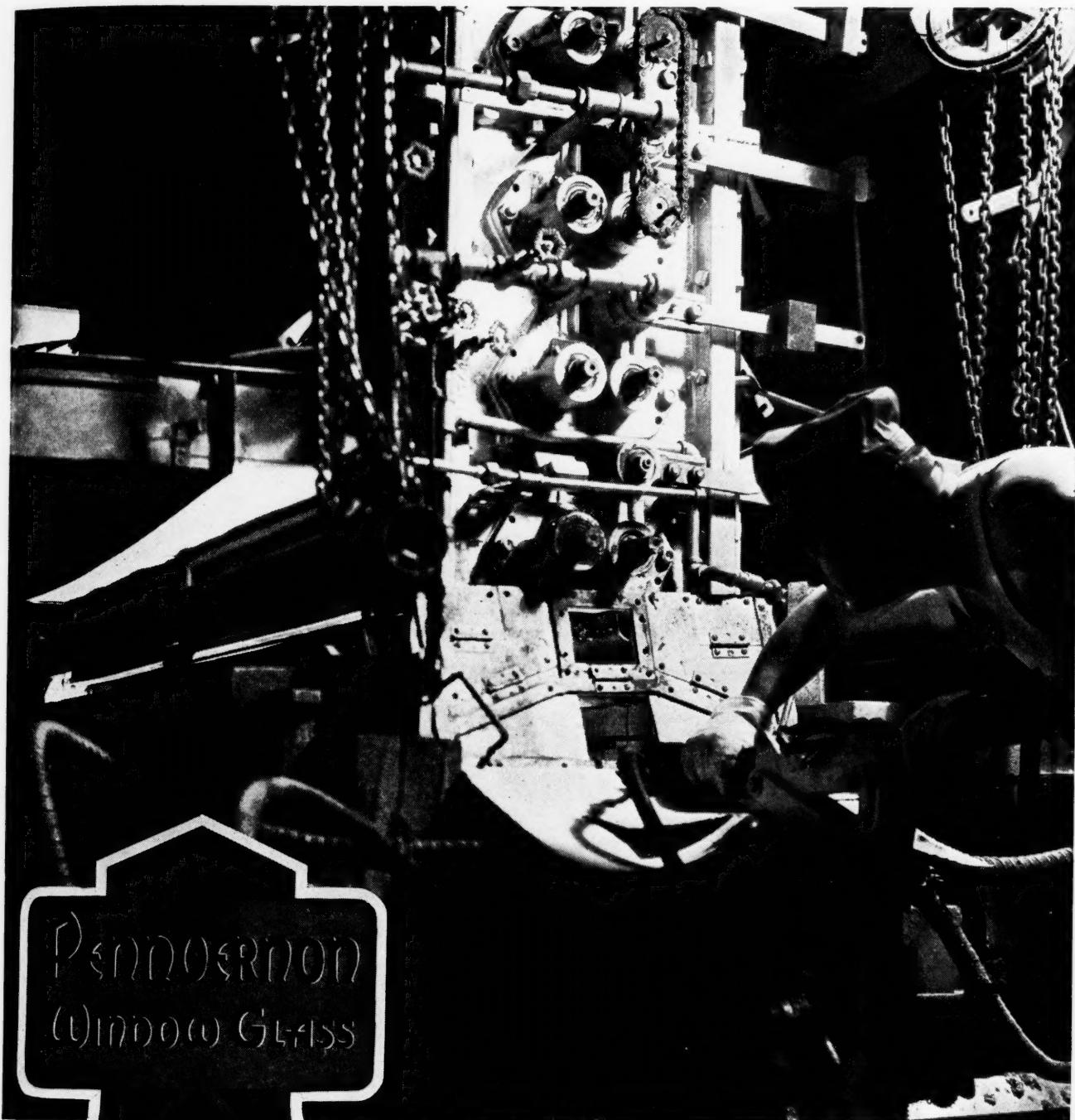
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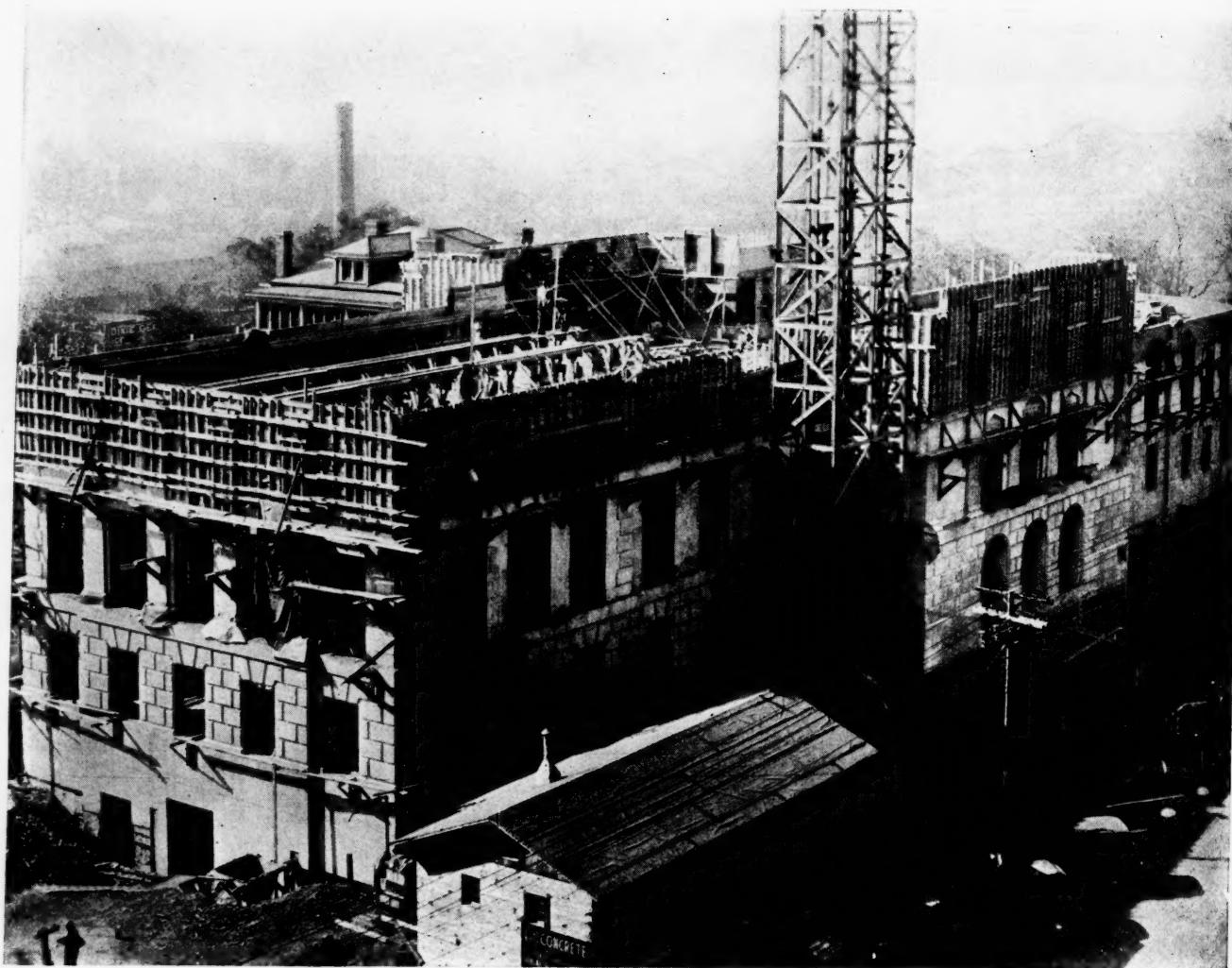
PITTSBURGH

PLATE GLASS COMPANY
2235B Grant Building, Pittsburgh, Pa.

Name _____

Address _____

City _____ State _____



Federal Court House, Columbia, S. C. Designed for U. S. Department of Treasury by Harold Tatum, Architect, Charleston, S.C. Contractor: James I. Barnes, Springfield, Ohio.

From Coast to Coast ALERT BUILDING OWNERS TURN TO **CONCRETE**

Architectural Concrete is fast gaining wide acceptance as the modern way to build factories and warehouses, business buildings and apartments, court houses and other public structures.

And no wonder, for today concrete offers—

Welcome economy resulting from a highly perfected technique of casting walls and ornament monolithic with the rest of the structure.

Proved weather resistance—an impressive record from Alaska to the Tropics.

Distinctive appearance, the product of complete design freedom and choice of pleasing surface textures and treatments.

Utmost firesafety plus rigidity and structural unity that defy even hurricanes and earthquakes.

Minimum maintenance and repairs.

Ask your architect and engineer about the advantages of this technique in concrete construction. Or write for one of our engineers to call.

Send for the attractively illustrated booklet, "Beauty in Walls of Architectural Concrete."

PORLTAND CEMENT ASSOCIATION
Dept. A6-21, 33 W. Grand Ave., Chicago, Ill.

Architectural Concrete

Frame and floors cast integral with walls and ornamental detail... Weather-resistant... Firesafe... Distinctive... Economical

MANUFACTURERS RECORD FOR



A YEAR AGO BUT TODAY--*an industrial giant rears its head*

UNTIL a year ago and for two-hundred years before, the above was the site of an old historic Southern plantation, The Hermitage. Today the hum of the riveters, the carpenters' hammers mingling with the pounding of pile drivers, the monotonous grind of concrete mixers and countless other noises have brought into being another giant industrial plant, adding to the South's growing paper manufacturing facilities.

•

The decision to locate a pulp, paper or a bag mill requiring an investment of millions of dollars is reached only after an exhaustive study of timber resources, available power, good water, dependable labor supply, climatic conditions and shipping facilities.

•

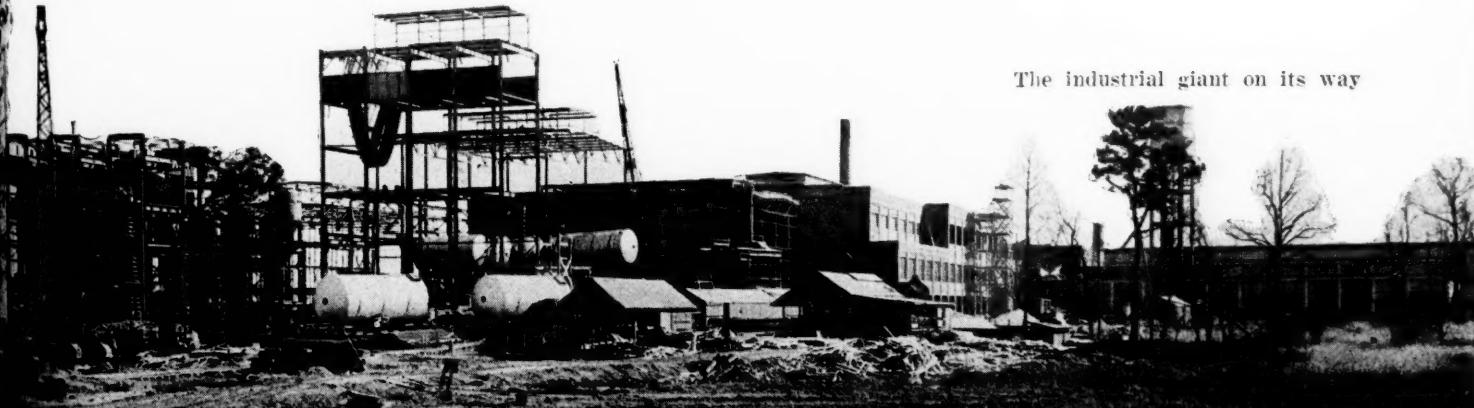
For many years, the MANUFACTURERS RECORD has published its survey of the material resources of the South in its annual

BLUE BOOK OF SOUTHERN PROGRESS. This is used as a basis of study by manufacturers as a guide in the location of new and branch plants. Manufacturers and investors have their eyes on the South.

Announcements are being made in the DAILY CONSTRUCTION BULLETIN of new projects locating South offering live opportunities for the sale of products used in these modern plants.

•
The MANUFACTURERS RECORD is the one publication that has centered its attention on and shown its faith in the South. It has championed its every interest. It tells a thrilling story to the people in the four corners of America; a marvelous record of Southern industrial accomplishments overcoming many obstacles and driving ahead in its manufacturing advancement at a faster pace than the rest of the country.

MANUFACTURERS RECORD
BALTIMORE, MARYLAND



The industrial giant on its way

YOUNGSTOWN

ORGANIZED

To give just as painstaking attention to the small order as to the needs of the largest steel user, Youngstown takes pride in the facilities it maintains to render a completely rounded service.

Commented a Youngstown customer recently: "One reason I like to deal with Youngstown is that, despite its size, its organization still retains that much needed personal touch."

This is a compliment we deeply appreciate and shall strive always to justify.

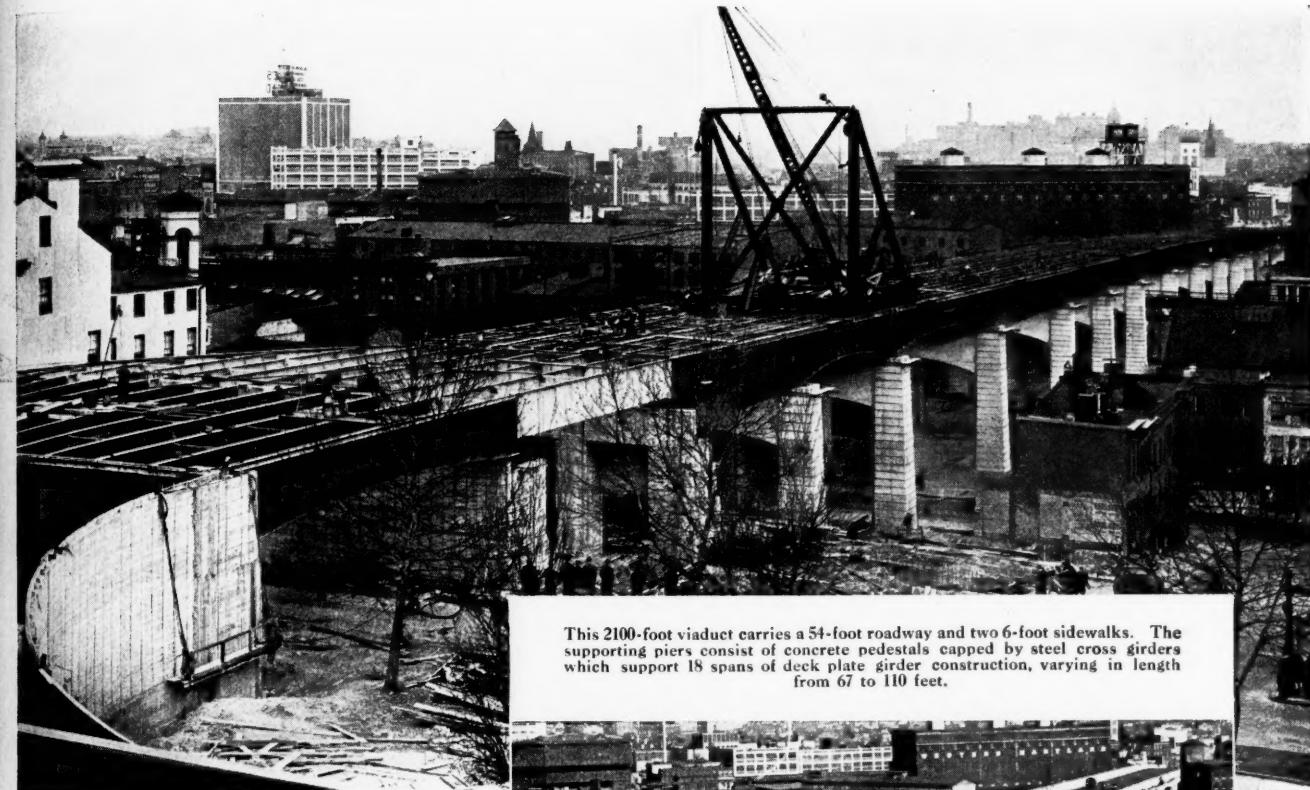
THE YOUNGSTOWN SHEET & TUBE CO.

Manufacturers of Carbon and Alloy Sheets
GENERAL OFFICES: YOUNGSTOWN, OHIO
Alloy Steel Headquarters: Chicago, Illinois

**
TUBULAR PRODUCTS - SHEETS - PLATES - TIN - WIRE
BARS - RODS - WIRE - NAILS - CONDUIT - UNION
- METAL PLATES AND ANKLES



VIADUCT *speeds* BALTIMORE TRAFFIC



This 2100-foot viaduct carries a 54-foot roadway and two 6-foot sidewalks. The supporting piers consist of concrete pedestals capped by steel cross girders which support 18 spans of deck plate girder construction, varying in length from 67 to 110 feet.



Orleans Street Viaduct built by the Maryland State Roads Commission for the City of Baltimore under direct supervision of Nathan L. Smith, Chairman; H. D. Williar, Jr., Chief Engineer; W. C. Hopkins, Bridge Engineer. Design developed by the Engineering Department of the City of Baltimore, B. L. Crozier, Chief Engineer, and H. F. Lucke, Jr., Associate Engineer.

General Contractors: George A. Fuller Co., Washington, D. C.

THE Orleans Street Viaduct carries traffic over 11 streets and the Western Maryland Railroad Yards, clearing by 16 feet or more one of the most congested areas in Baltimore. From street level at Exeter Street, this viaduct extends Orleans Street some 2100 feet westward to meet

grade again by a "Y" approach at St. Paul Place.

American Bridge Company erected, without obstruction to cross traffic, over 4700 tons of steel which they had fabricated from structural shapes supplied by Carnegie-Illinois Steel Corporation.

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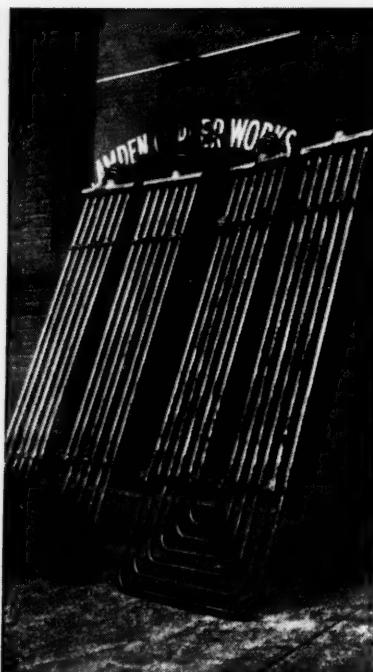
Duluth • Minneapolis • New York • Philadelphia • St. Louis

Columbia Steel Company, San Francisco, *Pacific Coast Distributors*

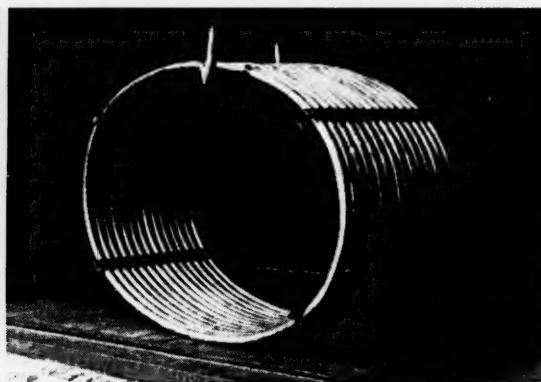
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UNITED STATES STEEL



Heating coils for candy plant.



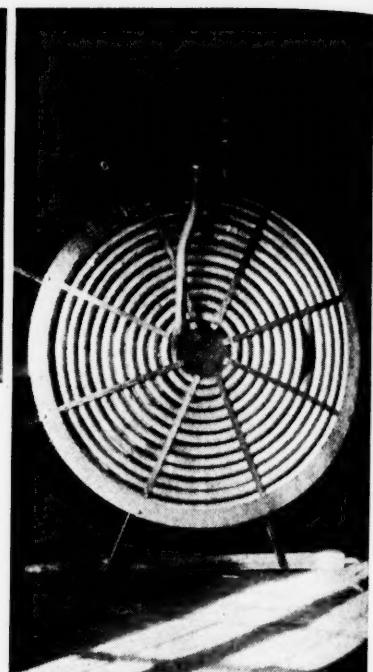
Coil made for a ship-builder.

Coils

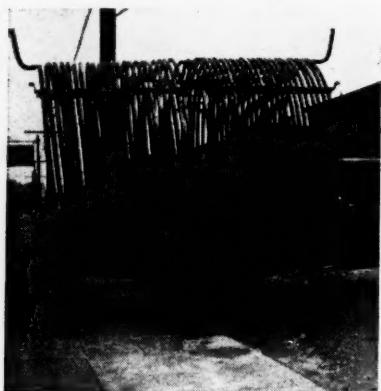
Coils for candy, cutters, coolers. Coils that go 'round and 'round . . . coils that go this way, then that way. Coils of Revere Copper Tube . . . useful and practical because of copper's high thermal conductivity, easy working qualities and resistance to corrosion.

Copper coils for industry are just one form of this useful metal. Revere fabricates copper, brass and bronze of a wide variety of forms, shapes and sizes. If you have a designing or production problem for which copper or one of its alloys might provide the right solution, we invite you to consult with our Technical Advisory Service. Address our Executive Offices.

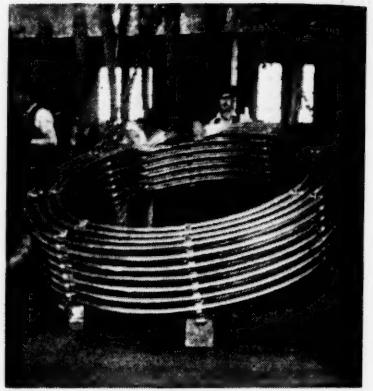
★ These photographs are available through the courtesy of the Camden Copper Works, Camden, N. J.



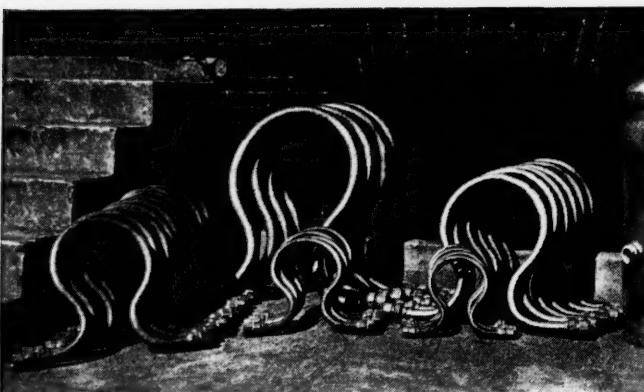
Logwood extract plant heating coil.



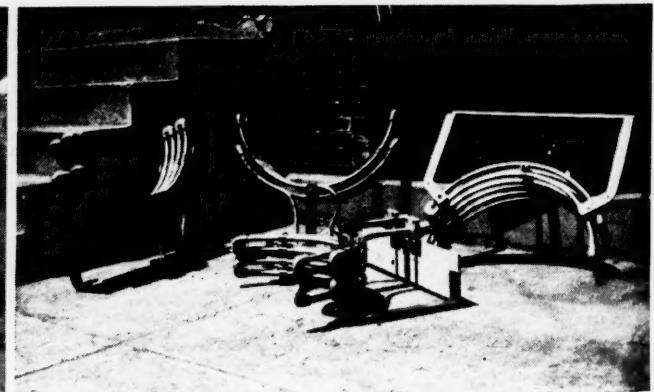
Condenser coils for alcohol plant.



Cooling coils for electric turbines.



Expansion joints for use on Government Coast Guard cutters.



Coils for turbine oil coolers.

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PERVERSION OF GOVERNMENT

"LET him lean on the State for nothing that his own arms can do, and on the government for nothing that his State can do."

Henry W. Grady spoke at a time, following the war between the states, when there were, as there are now, those who would place power in the hands of a Federal bureaucracy that would destroy the foundation of America. That foundation is the liberty of the individual and his responsibility to his state.

Those who scoff at it would tear apart the plan that has made America what it is, and has served better as a form of government than any other plan ever devised since men began to dream of liberty.

In recent times there has been very grave misconception and consequent perversion of the purpose of government. Instead of rigid observance of the limits laid down in the Constitution, strange costly experiments, born in the minds of impractical men, have been tried one after the other and still are being tried. Government competition with private industry is urged. State's rights are disregarded. Ventures in reform costing hundreds of millions are so numerous that the many bureaus handling them have been hard put to find office space in Washington.

Relief has become a monstrosity. "No one in America shall starve." When was it decided that that is the business of Federal government? The community, the church, the individual, always have assumed and borne as they should the responsibility of the needy, and America never has been regarded as a land of starvation. It has not been lacking in charitable instincts, nor the ability to make them effective.

Towns that have refused government relief money have no starvation cases, but they

do have the able-bodied at work. This would have been the case generally if those who rushed to get some of the huge hand-out of Federal funds had given even casual thought to the consequences. These are seen in a political machine of alarming size and extravagance.

Grover Cleveland refused to sanction a grant by Congress of \$25,000 for drought sufferers in one of the states because "I find no authority in the Constitution to appropriate taxpayers' money for such purposes." Today such huge sums have been voted by Congress that boondoggling is adopted as a way to spend the money.

Individual liberty, as vital as in "horse and buggy days", has been lost sight of temporarily in the complacency that has tolerated so many new fancies of the brain trust boys. Now, however, the awful cost of the New Deal is beginning to sink in and the politicians whom we have permitted in their "regular" way to become reckless of consequences are listening to the voices from back home.

NRA, AAA, R. R. Retirement, Hot Oil and Guffey coal bill—one by one are being sent on the road to oblivion, but they have left their memory to warn of what might be if the attempt to magnify a depression into the remaking of America should go unchecked.

Chief Justice Hughes said in his separate opinion in the Guffey coal case:

"If the people desire to give Congress the power to regulate industries within the State, and the relations of employers and employees in those industries, they are at liberty to declare their will in the appropriate manner, but it is not for the court to amend the Constitution by judicial decision."

COMPETITION THAT HURTS

IMPORTS GAIN 25 PER CENT—EXPORTS GAIN 7 PER CENT

BROADENING the home market for the output of American farms is of primary importance. Everyone who has given any thought to the subject realizes that without a profitable agriculture we can have no sound improvement. Admitting this major need, and despite efforts to help the farmer which to many at times have seemed contrary in practice and results, we have faced expanding imports in direct competition with basic products.

In the industrial field of textiles, the President acted last month to offset ruinous Japanese competition by increasing import duties. It is impossible for American manufacturers to continue in business and pay wages to which American workmen are entitled and require for a decent standard of living if competition with Oriental labor is necessary. Such labor works sixteen hours for a wage less than Americans are paid for one hour.

Recently the Department of Agriculture issued some illuminating facts about imports of farm commodities. These imports were divided into two groups—those which directly compete in the domestic market with the sale of American farm products and those that are commonly classed as non-competitive. Many classifications in the latter group, however, are open to debate, for, if they do not directly compete, most of them are certainly substitutes or are interchangeable with some other domestic commodity produced by American farmers.

Our foreign trade figures strikingly show that the American farmer in the past few years has had to meet increasing competition from abroad. Taking the Department's classifications of non-competitive imports, the value of these increased between 1932 and 1935 to \$483,000,000 or 30 per cent, while the value of admittedly competitive imports jumped to \$623,000,000 or about 110 per cent.

It has been pointed out that in 1929 competitive and non-competitive imports were about equal in value.

Some Competitive Imports

Commodity	1935 Value	Per Cent Increase Over 1934
Cattle	\$8,497,000	1280
Hogs	312,000	*
Meat products	19,177,000	49
Animal oils and fats	18,490,000	219
Dairy products	15,000,000	38
Hides and skins	45,576,000	29
Wool, unmanufactured	29,924,000	78
Grains and preparations	73,313,000	119
Fodder and feed	12,932,000	70
Vegetable oils	57,733,000	90
Vegetables and preparations	18,648,000	15
Cane sugar	132,000,000	13
Molasses	12,000,000	50
Jute	42,742,000	21
Other vegetable fibers	20,960,000	53
Wood, unmanufactured	5,807,000	37
Wood, sawmill products	19,551,000	66
Wood pulp	70,757,000	14

While these gains in imports were made in 1935 over 1934, exports of some commodities have declined, such as meat products, dairy products, grains and preparations, cotton manufactures, coal and related fuels, and steel mill products.

*Hog imports were less than \$500 in 1934.

In 1932 non-competitive imports were 25 per cent more. By 1935 the situation was reversed and competitive imports were exceeding non-competitive imports by 29 per cent.

Considering these figures, it is disturbing that in the face of all the plans to help the American producer broaden his domestic outlets no move had been made to combat competition that saps the domestic market and reduces to that extent American employment which otherwise would be engaged in productive enterprise at home.

Instead, the free trade policy of the State Department has been to make it easier for foreigners to compete with American producers and in effect has lowered the tariff on hundreds of different commodities.

The latest State Department agreement with France opens up additional competition with American producers. The theory "to sell more abroad we must buy more from foreign countries" has not worked out in practice. The MANUFACTURERS RECORD has cited many times the economic fallacy of sending our money abroad in increasingly larger amounts for competing goods when American producers have been trying to revive their domestic market. Our exports have increased comparatively little, not because foreigners did not have money to buy our goods, but because they preferred to invest their money in American securities rather than in goods.

Total foreign trade of the United States in 1935 was \$4,329,000,000, the highest since 1931. In 1935 our exports amounted to \$2,281,000,000, and imports for consumption were \$2,038,000,000, nearly 60 per cent entering free of duty.

While our imports increased \$402,000,000 or nearly 25 per cent, compared with 1934, exports gained only \$149,000,000 or less than 7 per cent. Since the depression low of 1932 our imports have increased \$723,000,000 or 55 per cent, while exports were increasing \$670,000,000 or 41 per cent.

VITAL ISSUES AT STAKE

CRICISMS of the course of this publication in condemning New Deal mistakes have been very few. Beginning early in 1933, following the present administration's installation in office, we have not hesitated to call attention to the plain mistakes that were being made.

We do not regard it as amiss to repeat, for the sake of the few critics and for the benefit of those who may be too complacent under present circumstances, to repeat what in effect we have said more than once in the last three years, and in saying this we view it from a standpoint of Americanism, which should come first and ahead of every business consideration, but as well, because of the very definite, unmistakable adverse effect, continuation of the present course will have upon business development.

We said in September, 1934:

To Revive Confidence the President Might Say:

"I will recommend the removal of Section '7A' from the Recovery Act.
"Fear of further inflation may be dismissed at once.
"Gold is the recognized basis of our currency. The value of the dollar will not be further depreciated.
"Expenses of Government will be reduced rapidly, both extraordinary expenses as well as operating expenses.
"Government competition will not be extended in any direction.
"Recovery through the encouragement of private industry will be my chief aim."

This is as true today as when those lines were printed and there will be no real sound confidence in this country until whoever is elected in November reassures the country upon these questions, about which doubt and uncertainty continue.

If by some necromancy a business man should be elected to the President's office in America overnight, the first thing he would do would be to reassure business to the extent, at least, that there would be no punitive action directed toward right acting business. Illegal practices would be checked, but individual progress based on the American spirit of initiative, energy and reward of the individual promised to the American people would be encouraged, and the result at once would cause values of every kind to assume a definiteness they lack today. It would cause investments to be made with certainty and an assurance conveyed to the hearts of men upon whom, every sensible person knows, rests the progress of America.

Business has been better in spite of the New Deal. Allowing for all the temporary injection of artificial life which pump priming has brought about, true confidence has not come. There is doubt about so many things that bear directly and vitally on the life of this country. They are affecting the thought and actions of every reasoning individual. We have gone a long way from the spirit and course that have made America what it has been. That is why the MANUFACTURERS

RECORD speaks out against the fallacies introduced by altruistic theorists who have led us into a morass of debt and are going to sink us deeper unless the course is changed.

In some quarters it has been held improper and unethical for a business paper ordinarily to print discussions having a political flavor. It has been held that this would be better left to the newspapers and magazines which include politics in the field they cover.

It is not a time for a business journal to be silent today upon questions which bear vitally upon the continuance of our existence as a nation of progress and well-being.

\$30,000,000 IN NEW SOUTHERN PAPER MILLS

RECENT activity in the purchase of extensive tracts of pine timberland and the announcement of plans for large paper mills in the South as well as work going forward on several mill projects are significant of the growing importance of the South as an industrial center. These mills are being built to more completely utilize another of the South's natural resources, and come largely as a result of Southern scientific research which is advancing in many fields.

The paper mills so far announced are designed to manufacture pulp, kraft paper and linerboard from Southern slash pine and may be considered the forerunner of a new domestic newsprint manufacturing industry. It is natural that these plant facilities be used first for production in an established field. The newsprint end can be added later, requiring only a fraction of the investment a plant established solely for the making of newsprint would involve.

Six new paper plants, announced or started within the very recent past, will have a capacity of 1250 tons daily of pulp, kraft paper and linerboard. They will provide employment for 7500 people, representing a combined payroll of approximately seven and a half million dollars a year.

Many basic industries will benefit from their operation. A diversity of materials and machinery are required. A new opportunity will be given the Southern farmer, for thousands of acres of so-called marginal lands may now be profitably employed in growing a new crop—Southern slash pine.

Here is the opening of a new frontier. One which offers a ringing challenge to the initiative and ambition of Southern business, and particularly is it a challenge to Southern capital to make possible a newsprint industry which will make this country largely independent of foreign sources and create a domestic industry with an output that will reach \$175,000,000 annually at present prices, which represents the amount we are now sending abroad for foreign paper, pulp and pulpwood.

The Truth About Unemployment

If 12,000,000 persons are out of work in the United States, as the American Federation of Labor claims, then between 8,500,000 and 9,000,000 of these unemployed belong to the agricultural class, to the domestic and personal service class and to the professional class.

If 10,000,000 persons are out of work in the United States, which number is supposed to be the unofficial government estimate, then between 6,500,000 and 7,000,000 of these unemployed belong in agriculture, professional service and domestic and personal service.

These two conclusions are the only ones to be drawn from an unemployment survey which *The New York Sun* has been making for the past five weeks and which is still in progress. Thus far 7,000,000 of the 28,000,000 workers, who in 1929 were engaged in the mechanical and manufacturing industries, trade, mining and in transportation and communication have been accounted for. All workers are included, skilled and unskilled, manual and clerical.

As against the 7,000,000 workers employed in 1929, *The Sun* has the comparative figures of the number employed in 1935. Thus it has been able to find the percentage of employment for the year 1935 as compared to the year 1929. By applying this percentage to the number of workers reported by the U. S. Census of 1930, an estimate is made of the total number of employed for 1935 as compared to 1929. In like manner the number of unemployed in 1935 as against 1929 is arrived at. Using U. S. Census reports as its basis, it is estimated that a net total of 2,170,000 new workers have come into the field since 1930 by reason of the increase in population. These 2,170,000 are apportioned to each working class according to census percentages.

Unemployment Breakdown

To date, with returns from 25 per cent of the total, the unemployment estimates are as follows:

In manufacturing 1,632,700

In trade None

(The figures show that trade has absorbed more than its quota of 7,752,000 workers and that it is employing around 8,000,000 having made room for some 300,000 from other fields.)

In mining 269,600

In transportation and communication 1,490,700

These give a total of 3,393,000 unemployed in the manufacturing and mechanical classes, in mining, and in transportation and communication. It is assumed,

Facts Obtained From A Survey of Industry

By

Charles H. Franklin

reasonably, it seems, that the 300,000 additional workers absorbed by trade have come from these classes. A subtraction of the 300,000 from the 3,393,000 leaves a net of 3,093,000.

Survey Method Detailed

BEFORE continuing with the figures and their analysis, the history of the survey and the method used in taking it will be outlined.

It originated in a discussion of President Roosevelt's relief message to Congress of March 18, 1936, in which the President said that 5,300,000 families and unattached persons were in need of government and local support. It was in this message that the President placed the responsibility for unemployment in the lap of industry and urged it to accept that responsibility. If it did not do so, he said, he would have to come to Congress again and ask for more than the "only \$1,500,000,000" which he was then asking, to be used for Federal relief work.

One member of the group in the discussion advanced the argument that if the President stated that 5,300,000 were in need of support, then that number constituted the entire unemployment problem. Against this others quoted the opinions of Harry Hopkins and the figures of William Green to show that 12,000,000 were unemployed but that only 5,300,000 of the 12,000,000 asked the government to keep them.

But the first man would not be denied. He insisted that, if 12,000,000 persons were out of work, one out of every two persons in each of the forty-one American cities having a population of 200,000 or over must be without a job. These forty-one cities with a combined population of approximately 30,000,000 are:

New York, Chicago, Philadelphia, Detroit, Los Angeles, Cleveland, St. Louis, Baltimore, Boston, Pittsburgh, San Francisco, Milwaukee, Buffalo, Washington, Minneapolis, New Orleans, Cincinnati, Newark, Kansas City, Seattle, Indianapolis, Rochester, Jersey City, Louisville, Portland, Ore., Houston, Toledo, Colum-

bus, Denver, Oakland, St. Paul, Atlanta, Dallas, Birmingham, Akron, Memphis, Providence, San Antonio, Omaha, Syracuse and Dayton.

Of the 30,000,000 inhabitants of these cities, 12,000,000 should be following gainful occupations in every field of endeavor, labor, the professions, public service, etc. These 12,000,000 represent one-half of the 30,000,000 persons ten years of age and over. The contention was made that since unemployment must be greatest in the densely populated cities, it was reasonable to believe that 6,000,000 of any 12,000,000 jobless should be found in these 41 cities. "Certainly this should be the case," said the proponent of the claim, "if, as is charged, industry and business are responsible for unemployment. More than 50 per cent of industry and business is concentrated in these cities."

The upshot was the usual upshot, heard for the past three years: "Why don't we have a census of unemployment?"

This time something was done!

Seven hundred questionnaires were sent out, as a trial, to the leading corporations and business houses of the country. The figures for railroad employment were obtained from the Interstate Commerce Commission, those on automobile factory employment from the Automobile Chamber of Commerce, those on cotton textile mills from the Cotton Textile Institute.

Unemployed Total in First Report Unchanged as Fifth is Published

THE returns were a revelation both in numbers and in the figures they presented. In the first report, published on May 2, *The Sun* accounted for 5,498,000 of the workers who had been employed in 1929. In its fifth report, published on May 29, it accounted for close to 7,000,000. It must be noted that the first report had the bulk figures on railroads, cotton textile mills and automobile factories. The subsequent 1,500,000 workers listed came in individual reports from individual companies.

The first report estimated the total unemployment at about 3,100,000. In the fifth report that estimate is unchanged. The significance is that the estimate has remained constant despite the fact that in the four last reports the returns have been mostly from the smaller corporations and business houses.

The New York Times, in an editorial after the first report, said *The Sun's* survey proved that unemployment was not general in industry and business. Rather, observed *The Times*, it showed

that the unemployment problem was limited to certain well-defined sections and it should put a stop to loose talk and generalities.

The four reports which have followed bear out *The Sun's* deductions and those of *The Times*. Unemployment as a problem of industry is confined almost entirely to the railroads, to the capital goods lines and to mining.

Company By Company

Roll Call Tells Story

NOTHING tells the story of the survey better than the listing of company after company with the figures of employment in 1929 and 1935. Space does not permit such a presentation here, for already the compilations have taken up almost four full newspaper pages. It is hoped, before it is completed, that it will take up at least as many more and that at least 10,000,000 of the total number of workers accredited to industry and trade will be accounted for.

To give the reader an idea of the trend of the poll, figures for some groups are listed herewith:

Capital Goods	
Reports of 15 companies	
Employees, 1929	266,565
Employees, 1935	200,281
Mining	
Reports of 10 companies	
Employees, 1929	142,450
Employees, 1935	80,974
Steel	
Reports of 10 companies	
(Including United States Steel and Bethlehem)	
Employees, 1929	358,736
Employees, 1935	313,820
Cotton Textiles	
Reports from 1,196 mills	
Employees, 1929	422,650
Employees, 1935	391,676
Chain Stores	
Reports from 10 companies	
Employees, 1929	165,311
Employees, 1935	213,313
Department Stores	
Reports of 10 companies	
Employees, 1929	27,339
Employees, 1935	27,847
Food and Packers	
Reports of 8 companies	
Employees, 1929	119,745
Employees, 1935	123,962
Automobile Factories	
Total for Industry	
Employees, 1929	447,350
Employees, 1935	438,000
Railroads	
Reports of 1,529 companies	
Employees, 1929	1,688,769
Employees, 1935	1,010,661

Aside from the groups in which full totals are listed, selections of companies were made at random from two of the reports of the census. A segregation of companies into their different classes has

not been made but as far as possible this will be done as a part of the final report.

Private and Federal Survey Figures Contrasted

It is interesting to compare *The Sun's* estimate of 3,100,000 unemployed with the Federal Work Relief figures for Feb. 29, 1936, showing a total of 3,800,000 "employables" on WPA, CCC, Rural Resettlement and other agencies. One must remember that *The Sun* covers only industry in general, whereas Federal Work Relief goes into all forms of unemployment from industrial down through domestic service.

Before making this comparison, however, it might be far more interesting to contrast the Federal Work Relief rolls with the unemployment census made by the government in 1930. At that time, April, 1930, total unemployment in the country was put at about 3,200,000. Of this number only 142,802 persons were reported unemployed in agriculture and agriculture embraced more than 20 per cent of the country's workers or 10,000,000 persons.

Today, in 16 agricultural states alone, there are more than 1,000,000 workers on the Federal Work Relief rolls. Strange though it may seem, the Government's own figures show that for the industrial states there are less relief workers today than there were unemployed by the Census of 1930. On the other hand in the non-industrial and farming states the Government is called upon to furnish employment for many thousands more than were reported unemployed in these states in 1930. This is a condition which calls for some intensive study by those who want to get at the real heart of both the unemployment and the relief situations in the United States today.

In any event it would appear that manufacturing, trade, transportation and mining cannot be held responsible for at least one-half of the employables on the work relief lists. They belong in agriculture, professional service and domestic service, mostly in agriculture and domestic service. This would leave 1,900,000 employables for which the industrial groups might be held responsible, it being granted all the time that these persons are really employables, willing to work and capable of work and not already working while on WPA, or chisellers who are getting aid for political reasons.

Millions of Unemployed Cannot be Laid at Doorstep of Industry

IN round numbers, therefore, the Government has 2,000,000 employables which it can attribute to industry. On the other hand *The Sun* esti-

mates 3,000,000 unemployed in industry. It may be possible that there are 1,000,000 unemployed who won't go to the government for aid or who do not have to go. It may be also that *The Sun* estimate is somewhat high.

Speculations aside, the survey does show that trade has come all the way back from the depths of 1932 and 1933 and today has surpassed its employment figure for 1929. It shows that the mechanical and manufacturing industries are moving along at a pace above 90 per cent of employment in 1929. They have made remarkable gains since 1933, as is indicated by such figures as an increase of 100,000 workers in United States Steel and General Motors between January 1, 1933 and January 1, 1936.

Rails and Mines Lag

THE laggards have been the railroads and mining, and of course the heavy goods companies which depend so much on the railroads, on construction, and on expansion of plant and industry.

Unemployment on the railroads was negligible in 1930. Today more than 600,000 men are jobless, many no doubt being from among the 400,000 laborers.

Unemployment among street and road laborers was about one in eight in 1930. Since then the government has usurped the field of road construction and is employing on work relief most of the 350,000 laborers, while private contractors twiddle their thumbs or go out of business.

The Sun's survey not only shows where the unemployment problem exists, but it shows that it exists in places where the Government's responsibility for it is equal to, if not greater, than industry's.

What about those fields in which industry has no responsibility? Agriculture should be providing work for 11,000,000 persons. Domestic and personal service should be providing work for another 4,000,000 persons. It must not be overlooked that the 15,000,000 workers in these two categories are the equivalent of all the workers who belong to the mechanical and manufacturing industries of the country.

Government's Gospel of Scarcity's Bearing on Unemployment Situation

No more than 3,500,000 are unemployed in what we will call the general industrial field.

If Mr. Green, or anyone else, insists that 12,000,000 are unemployed then he must concede that 8,500,000 of these are persons who were put out of work by the government's edict of an economics of scarcity or by the government's edict of equal wage without work for the domestic classes.

New Basic Problems of the General Contracting Industry

PROBABLY the problems of no other set of business men have been so fundamentally affected by developments of the last three years as have those of the general contractor. In this comparatively short period of time, there has been evolved of necessity practically an entirely new offensive and defensive battlefield for those whose function consummates the far-flung industry that is construction.

Such a basic change in the national problems of such a key group as the general contractors cannot fail to be of significance and importance to every group that is directly concerned with construction and, likewise, to the Nation at large. For this reason, it is essential that this change should be frankly stated and its economic and political potentialities made easily discernible to the business men and citizens of this country.

Without doubt the change is basic, and unless it is successfully met by the general contractors, it inevitably will alter the conduct of every American business and industry, and ultimately lead to the establishment of a socialized state.

Problems of Past Solved Within the Industry

JUST what has been the trend of this change in the basic problems of the contractor? I well remember, as a long active member of the Associated General Contractors of America, that we have always had serious problems with which to contend and which demanded the concerted action of the industry. There were, for instance, the plaguing questions of combating irresponsibility and cut-throat competition; the creation of a credit structure for the industry; recognition of the general and subcontractor as processors entitled to a better purchase price than the consumer; uniform lien laws; the foreign contractor; the evils of bid peddling; accident prevention, etc.

It was characteristic of all of those problems, however, that their solution was to be found and invoked from within the industry itself. The evil and the correction were not beyond the power of the industry to dictate. Marked progress toward the effective use of that power was being steadily made by the Associated General Contractors in cooperation with other harmonious national trade associations, when events thrust upon general contractors an entirely new and different set of problems, the origin of which was not from within the industry, but from the Government. I refer specifically to those problems growing out of the New Deal experimentation in the construction field.

New Deal Experimentation Centers in the Construction Field

BECAUSE of the fact that the Government is making its recovery expenditures almost entirely construction, and because of the adaptability of our industry, all of the tampering with the fundamentals of economics, and all of the attempts to socialize industry, are being tried out in our field.

"Pump Priming" Failure Laid To Incompetent Primers

Beginning some three or four years before the crash, the Associated General Contractors first advanced the theory that construction was the balance wheel of industry, and that in times of business depression, governmental agencies should balance industry by increasing public works construction. The principle was sound. When an effort toward reconstruction of the Nation's business structure was undertaken in 1933, this idea was seized upon, not as a principle based on sound economics, but as a theory, and as a theory it has been experimented with ever since. It has been given the euphonious title "Priming the Pump", the theory having been that once the pump is primed, business will carry on. The basic principle of priming the pump is to put the water into the pump. This can't be done by taking a bucket of water and spilling it over the pump, letting the great bulk of the water waste itself in holes in the ground, as was done with the great public works appropriation of 1933. Neither can it

be done by taking a bigger bucket of water and repeating the process of waste on a bigger pump, as was done by the appropriation of 1935. A pump cannot be primed by men who know nothing about the pump that is to be primed. This, however, has been the New Deal procedure.

Day Labor Methods Wasteful

The result has been not only the most widespread and wasteful day labor program ever conceived, but also a mortally dangerous interference with the economically sound functioning of the tried and proved contract system. By government edict and regulation, compulsory inefficiency has been forced upon contractors, and is making its influence felt in private as well as public work. The entire theory of priming the pump apparently has been given up in favor of digging a new well where previous soundings warn us no water is to be found, and the most serious development of the past year, as far as the construction industry is concerned, is the establishment of a bureau devoted to public works construction by day labor. The results of this program in operation have been as follows:

Government Policies Act As Brake On Private Industry's Recovery

1. A complete breakdown in morale of the workers in the industry, which will only be revealed when we again attempt to function normally.

2. A year ago, the country accepted without question the assurance of the President that lower rates of pay would apply on relief work, that relief work would not be made attractive. The statement was given wide publicity. Not so wide has been the publicity concerning the retraction of that statement. After heavy pressure from an organized minority, the original wage scale structure was abandoned and

in our larger cities the prevailing union scale has been adopted.

3. The relief wage scale has been made so attractive that relief workers are refusing to take jobs in private industry. As this article is being written the Deficiency Bill, appropriating \$1,425,000,000 for further waste under the WPA set-up, has passed the House and is waiting for Senate action. It provides for "prevailing wages" which means "union wages." It gives the workman the alternative of actually working under a contractor with probabilities of part time work and seasonal layoffs or actually loafing under WPA with steady time and no seasonal interruption. The workman is not a fool. He makes the choice you and I would make. The private contractor cannot stand government WPA competition for the services of the workman and the situation becomes unbearable. Once more the government makes it impossible for private industry to recover.

Present Program Destroys Morale of the Workers

It is argued that by performing some labor in return for the relief payment, a worker will forget that he is on relief. I would not belittle that reasoning, but WPA has not so handled the problem. To argue that the men on WPA do not know their status is to insult the intelligence of the American workman. Even a casual observation of a relief job will convince you that the men know their status exactly. They not only know their status, they know they are statuary. If the purpose of putting men to work is the worthy one of restoring morale, that can only be done by putting the men on contract work, without compulsory restriction upon their efficiency. Then their self-respect will be returned to them by competition with their fellow men, and the result will be a building up of the morale or a severance from the pay roll.

Those who believe that the encroachment of day labor on construction is the general contractor's problem, should bear in mind that the general contractors are the shock troops in the battle, the subcontractors and the material men come next. A socialized industry with every worker looking to the Government for subsistence, means socialization from A to Izzard. There are no general contractors, no subcontractors, no processors, no material dealers in Russia.

Calls Upon Construction Industry To Deny Responsibility for PWA

WHAT to do about all of this is the general problem of our industry. As a first step, the industry must rid itself of the stigma of what is going on under the name of construction. The public believes that we are

up to our necks in work, rolling in wealth, with our feet in the public trough. We must deny responsibility for, or association with, that part of the Public Works Program not being put through the regularly organized channels by the contract system, and we must deny this responsibility in no uncertain terms. If we do not do so now, the industry will bear the burden of that public stigma for years to come, and will suffer correspondingly.

A Rationalized Public Works Program Imperative Need

As a second step, we must perform the patriotic duty of rationalizing the new Public Works Program in order to make it a successful one. Success in such a program means:

(A) The waste of not one sin-

W. A. KLINGER, president of W. A. Klinger, Inc., general contractor of Sioux City, Iowa, was elected to the presidency of the Associated General Contractors of America, Inc., last January, in recognition of his unselfish work and leadership in Association affairs over a period of thirteen years. Prior to his elevation to the presidency, Mr. Klinger had served as president of the Association's Central Branch and as a member of the National Governing Board, where he played a prominent and constructive part in the framing of the Association's national policies. He also was a member of the Divisional Code Authority for General Contractors, Inc., under N.R.A.

Mr. Klinger has long been active in civic and industrial movements, having served as president of his local Chamber of Commerce and as construction's representative on the Iowa Agricultural and Industrial Commission, to which he was appointed by Governor Hammill in 1926. He holds the record for the longest continuous service as a director of the Sioux City Chamber of Commerce, having been a director continuously from 1924 to 1934. During the years 1928 and 1929, he was its president, and served the following four years as its National Councillor. Since its inception ten years ago, Mr. Klinger has been chairman of the Chamber's Committee on Inland Waterways, which has been the focal committee for a tremendous drive to get funds to make the middle Missouri and upper Mississippi navigable streams. As a direct result of that work, he has been a director of the Missouri River Improvement Association and the Mississippi Valley Association. He also was general chairman of the community chest campaign in Sioux City in 1927, the first year that the city ever went over the top in its drive for charity funds.

Mr. Klinger was graduated from the College of Engineering of the University of Wisconsin, and served there as an instructor for two years after graduation. The Iowa contractor is nationally known as one of the most dynamic and frank speakers in the A.G.C. ranks, and the accompanying article by him on the problems of the general contracting industry, bears out this reputation.

gle man hour of employment on pick and shovel boondoggling, when there is so much useful work to be done.

(B) The greatest degree of employment in all capital goods industries dependent on construction, and not only in the pick and shovel industry.

(C) A maximum return in useful Public Works to the citizens of the Nation for their money.

(D) The establishment of a Department with a Cabinet post devoted to Public Works by contract, rather than a bureau devoted to public waste by day labor.

(E) Construction men spending construction money.

It also is up to the industry to adopt and carry out a program that will produce construction. Such a program would have to consist of the following:

(1) We in the industry must sell ourselves on the theory that the Government can help us.

(2) We must go ahead on the premise that we must create our own demand in construction, and use such work as is produced by the Government only to supplement private work. If we unitedly can convince the public of the fallacy of government expenditure on day labor operations under the guise of construction, and stop the terrific waste of money, thereby creating a move toward the balancing of the National budget, and the stability of the dollar, and dispelling the fear of inflation, we could bring vast stores of private money out of the cyclone cellar into the investment field.

Vast Government Expenditures Bar to Capital Goods Industry Pick-Up

WE must cease waiting for the Government, discourage the public from looking to the Government, and sell construction on its merits. Cheap money is available as soon as it ceases being scared money. May I point out that there are inherently only two forms of investment for money—Government securities and capital goods securities. The Government is getting its money so cheaply because of a super-abundance of money. That money will seek capital goods investment as soon as it shakes itself loose of its present fears. Its present fears are based on the Government expenditure program, and the rationalizing of that expenditure program is the problem and patriotic duty of the construction industry.

Our Merchant Marine

A REVIEW AND A FORECAST

AMERICAN shipping has passed through many vicissitudes during our existence as a nation. Effective legislation in its behalf is conclusive evidence that our forefathers in the early days of our history fully recognized the importance of foreign trade and shipping to our economic welfare. The first act passed by the Congress of the United States at its first session in 1789 contained discriminatory duty provisions in favor of American shipping in foreign trade. Three acts of the first Congress were in support of shipping.

At the beginning of our history as an independent nation Great Britain held a monopoly in shipping and in foreign trade. Commodities from the Far East were shipped to Great Britain in British ships and trans-shipped in British ships to the United States under such conditions as to control the price to American consumers. The purpose of these early acts of Congress was to crush this monopoly and to induce Americans to enter the foreign trade and secure and hold it for American citizens.

The United States in those days was almost entirely a seaboard country where its population was largely concentrated. Much of our food supply came from the sea. We depended upon shipping to supply many of the necessities of life and almost all of the luxuries. Shipping was then a tremendous influence and a vital factor in our trade. It extended our markets for domestic products, afforded employment for large numbers of workmen, provided income to our people and furnished a substantial profit to ship owners. The early fortunes of our forefathers were largely acquired through foreign trade and shipping.

Congress Early Sought to Control Foreign Trade

THE underlying and primary thought which pervaded the discussions leading to these early acts of Congress was that a control of our foreign trade was absolutely necessary to our prosperity and that legislation should be enacted which would permit the United States to participate in the foreign trade of the world on an equal footing with other nations.

Under the legislation enacted in 1789 and subsequent years, the growth of American shipping from that time to 1807 is reported to have been without parallel in the history of the commercial world and the whole period from 1789 to 1828 was referred to as the "Golden Age" of American waterborne commerce.

By 1830 not less than fifty acts of Congress affecting shipping and trade had been passed, practically assuring to the United States the equal opportunity it sought in trade with other nations. It is a fact, however, that Great Britain did not freely open up the trade of her West Indian ports to American vessels until the expiration of the British Navigation laws in 1849.

No Permanent Policy for U. S. Shipping in Foreign Trade

OUTSTANDING among the early acts of Congress was an Act of 1817

which definitely closed the coasting trade of the United States to foreign-owned and foreign-built vessels, a policy as regards our domestic shipping which, with few exceptions, has existed up to the present time, and which has placed our domestic shipping thereby in a similar category to other means of domestic

Mr. Smith Declares:

Constructive permanent shipping policy prime need. Future of merchant marine rests upon Congress.

Records of U. S. Shipping Board show Government operation cost much higher than that of private operators.

Unless war-time built vessels, now nearly obsolete, are replaced shortly, we shall be attempting to maintain our place in foreign trade with a wholly obsolescent fleet of ships.

From the standpoint of national defense and as a factor in our economic welfare, the need for a strong American merchant marine, so we may control the carriage of our goods in our own ships, is essential.

By
H. Gerrish Smith,
President,
National Council of American Shipbuilders



H. Gerrish Smith

transportation, that is, a matter of regulation within our own control.

The United States has never adopted, however, a permanent, definite policy for American shipping in foreign trade. Because of the strong position the United States had acquired through early legislation and through the American development of the clipper ship built of wood and operated by sail, the United States maintained a predominant position in world shipping until the outbreak of the Civil War.

During the war, however, when merchant vessels were largely withdrawn for blockade purposes or withdrawn from trade for fear of loss, our foreign trade in American ships was largely curtailed. After the war the minds of our people were so fully occupied in the development of our railroads and our industries, that shipping was neglected, and foreign flag ships carried more and more of our goods to the markets of the world. Spasmodic efforts to revive American shipping were made through mail contracts Acts in 1864 and again in 1891.

World War Spurs Development Of American Merchant Marine

THE American people were fully awakened, however, at the outbreak of

the World War to the necessity for a substantial American merchant marine in the protection of its world trade. At that time foreign nations were carrying fully 90 per cent of our goods in this trade, and as the European nations entered the World War their ships were withdrawn for war purposes and American shippers were left without the means of getting their products to foreign markets. Hundreds of millions of dollars worth of exports lay aboard cars near the seaboard with no ships to move them.

A realization of this serious situation brought about the Shipping Act of 1916 for the encouragement, development and creation of a naval auxiliary, a naval reserve and a merchant marine adequate to meet the requirements of the commerce of the United States.

Following the War, the Merchant Marine Act of 1920 authorized the creation, out of this fleet by the Shipping Board, of shipping services on our important trade routes to foreign markets. Over two hundred services were started, some under government operation and some by contract with private operators. These services were reduced in number from time to time and were sold to private operators as opportunity offered.

While the Act of 1920 created these services it offered no impetus to the replacement of ships as they became obsolescent. This was one of the important factors responsible for the Merchant Marine Act of 1928, which with its mail pay and its construction loan provisions offered an incentive to new construction, resulting in the building of 31 combination passenger and freight ships for various services that are the equal of any ships built in the world for similar services during the same period.

The Act of 1928 and its mail pay provisions followed a policy that had been adopted by this country first in 1845, later from 1864 to 1868 and again in 1891, a policy which had also been adopted by other nations for the development of their shipping, and a policy which it is believed could have been accepted, if properly administered, as a permanent policy for the upbuilding and maintenance of our American merchant marine in foreign trade.

Notwithstanding the very clear intent of the Act of 1928, as evidenced in committed hearings when it was under consideration, the objections in Congress by individuals and groups to the Act is such that a modification of it in the near future, or its replacement by an entirely new act, seems inevitable.

Strong Merchant Marine for National Defense and Economic Welfare

THE necessity for a strong American merchant marine, both from the standpoint of national defense and as a fac-

tor in our economic welfare, is pretty generally recognized by the American people. The method of developing and maintaining such a merchant marine, however, is a subject of much difference of opinion among our legislators.

It is estimated that approximately 10 per cent of the total business of this country is involved at all times in our foreign trade, giving a livelihood to approximately 10 per cent of our people. With the greatest export trade in the world, a control over our goods in transit, and the development and maintenance of our foreign markets require a substantial participation by American ships in the carriage of our goods to and from these markets.

If we do not control the carriage of our goods in our own ships we must depend upon other nations to carry them for us. A full reliance upon foreign vessels has been shown for many reasons to be unsatisfactory at all times and fatal to our trade in a time of war when the vessels of such nations may be needed for war purposes.

There are three fundamentals underlying the operation of American shipping in foreign trade:

1. A recognition of its national importance as a service for those who have goods to ship abroad.
2. A recognition of the fact that a higher cost of building and operating ships under the American flag, due to our higher living standards and higher wage rates, is inherent to the shipping industry.
3. A consequent recognition of the necessity for some form of government aid to overcome the handicap of higher costs of building and operation.

HAVING served since 1929 as president of the National Council of American Shipbuilders, the author of the accompanying article has been actively interested for many years in the upbuilding of an American merchant marine. Mr. Smith is also secretary-treasurer of the Society of Naval Architects and Marine Engineers, and is a member of the Technical Committee appointed by the Senate Commerce Committee to study and report on Safety of Life At Sea.

He was graduated from the U. S. Naval Academy, and studied at the Royal Naval College, England, and after serving six years in the United States Navy, spent ten years as a U. S. Naval constructor. Resigning from the Navy, he became manager of the Fore River Shipbuilding Corp., and was soon elevated to vice president and general manager of the organization. Later, he became manager of the Bethlehem Shipbuilding Corp., Ltd., and was subsequently appointed assistant to the president, and afterward was named vice president. During the World War he directed the construction of a large fleet of destroyers and submarines for the U. S. Navy and many types of merchant vessels for the U. S. Shipping Board.

Private Operators Must Replace Obsolete Ships

THE Merchant Marine Acts of 1920 and 1928 both recognized in their preamble the necessity for a merchant marine ultimately to be owned and operated privately by citizens of the United States. The only alternative to private operation is government operation and the records of the Shipping Board show that under government operation the cost is much greater than the aid necessary to permit of private operation.

Bills now pending before Congress in aid of shipping still contemplate private operation with government operation only as a final alternative, and all such legislation recognizes the necessity for government aid to permit of private operation. As of today there are approximately 2,750,000 gross tons of seagoing merchant vessels, each of 2,000 gross tons or over engaged in our foreign trade. With the exception of the 31 vessels built under the provisions of the Merchant Marine Act of 1928 the remainder are mostly wartime built vessels now nearly obsolete, and unless they are replaced in the near future we shall be attempting to compete with a wholly obsolescent wartime fleet of American vessels with the more modern fleets of other nations.

Long-Range Planning Need of Private Ship Owner

THE outstanding need of American shipping at the present time is a permanent government policy that will enable the private ship owner to plan for the future, to operate his vessels with an assurance of profit and to replace his obsolete tonnage as rapidly as possible with a substantial number of new vessels, and such a policy by the government must provide for a fair adjudication of existing contracts entered into under previous legislative acts.

Private ship operation, like any other business, must be at a profit if it is to develop. If our government policy does not so provide, the only alternative is government operation or a decadence of our merchant marine to the unfortunate position it was in just prior to the World War when we were carrying only about 8 per cent of our goods in foreign trade, and those almost wholly to the nearby ports of the West Indies.

Constructive Permanent Shipping Policy Needed

THE future of our merchant marine in foreign trade is clouded with many uncertainties. The responsibility rests upon Congress to adopt and adhere to a constructive permanent shipping policy that will permit the American operator courageously to plan for the future in the development of his shipping services under adequate government control but not hampered by restrictions that will retard rather than promote such development.

Much has been accomplished in the twenty years that have passed since the Shipping Act of 1916, but a constructive permanent shipping policy, as stated, is necessary if we are to continue to maintain the important position that our shipping now holds in world trade.

What's Going On In THE HOME FINANCING FIELD?

Billion Dollar Business in Sight for Home Building Associations

Repair and Modernization Loans Promise to Continue in Volume

Home Building Activity Gains as Pent Up Demand is Unloosed

Improvement in Employment Situation Boon to Low-Cost Housing

By

Morton Bodfish,

Executive Vice President,
United States Building and Loan League,
Chicago, Ill.

Billion Dollars of Business in Sight

A 36 per cent increase in the loans made by savings, building and loan associations is shown during the first quarter of 1936 as compared with 1935. The total volume of loans for January, February and March was \$206,209,000 as compared with \$126,165,000 last year.

The increase in lending is significant not only because it indicates the rapid return of the associations to a position where they can meet the needs of the community, but also because the purposes for which loans are being made this year are more nearly the normal activities characteristic of a period of recovery.

New Mortgage Loans Up Refinancing Declines

WHEN loans for new construction and for home purchase are increasing their percentage of total loans made there is good basis for belief that things are rapidly getting better in the home mortgage field. This is true according to the indications from the last six month's lending performance of the associations.

Construction and home purchase loans account for 45.8 per cent of the dollar volume of new mortgage loans during that period. There has been a consequent decrease in the percentage of new loan funds going into the refinancing of existing mortgages. March showed the largest advance of all in the prevalence of home purchase loans. They constituted 26.9 per cent of all building and loan activities during that month and were practically equal to the total volume going into refinancing.

loans made by these institutions are conspicuously for larger amounts than those made by finance companies and banks using exclusively the FHA Title I plan for modernization credit and thus there is a field for their services in modernization in which the associations will continue to operate.

"Own Your Own Home" Movement Accelerated

CONSTRUCTION

loans, as was seen in the percentage breakdown of purposes for which all loans were made, are becoming an increasing factor in the total lending business and are expected to continue this trend as the year progresses.

A definite end to the period of slack and inactivity in home building has come. While no boom of the proportions characteristic of the late 20's can be expected because of various factors there will be more enthusiasm about owning a new home than we have seen since 1929.

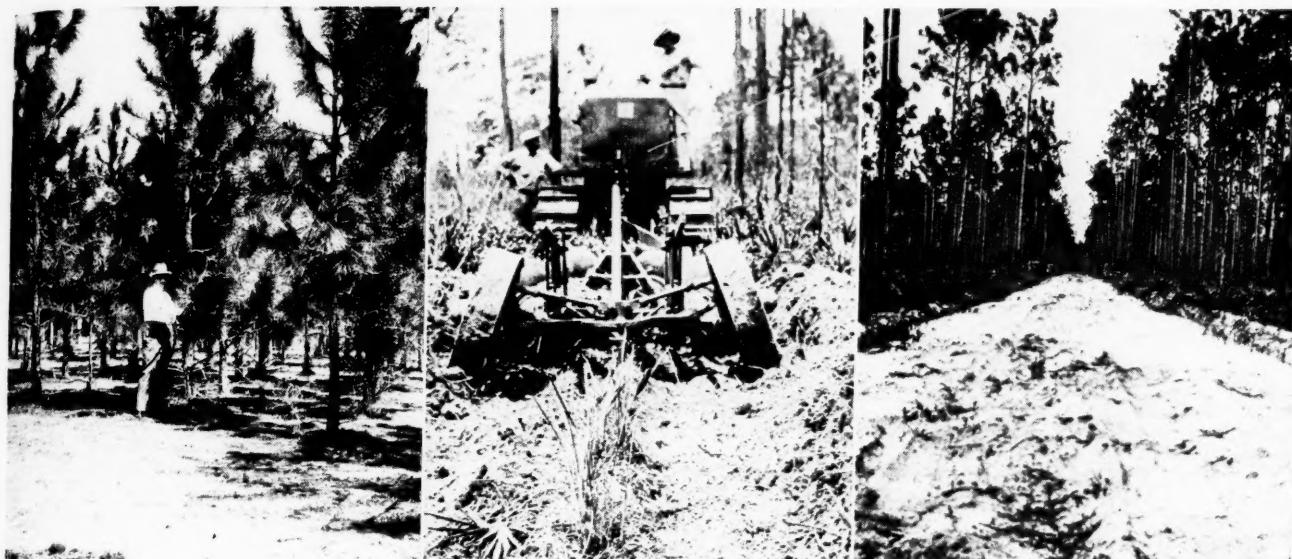
As yet the homes which are being built are largely in the cost group which cannot be afforded by the lower income classes. Where the smaller, less expensive homes are being built the financing is predominantly by the savings, building and loan associations, as shown by the fact that the average construction loan over the past six months was only \$3,245. This is the field which has been served by the associations throughout their 105 years of existence.

It is predicted by the Home Building and Home Owning Committee of the United States League which studies these problems, that toward the latter part of 1936 there will be a tendency for the smaller home to be built because of the probability that by that time there will be more stability of employment and better earnings among the group of people to whom the small home naturally appeals.

Repair and Modernization Loans Claim the Spotlight

THE average size of loans being granted by associations currently is still about \$1,000 under the size of loans made in normal times. The principal reason for this condition is the great impetus which was given to repair and modernization loans beginning about two years ago. As a result of this the associations have made approximately \$155,000,000 worth of loans for reconditioning, repairs and remodeling. The average size of such loans has been about \$900 and this factor is inclined to pull down the average normal loans.

At least during the rest of this year such credit will probably continue to occupy a prominent place in association financing. The repair and remodeling



Suwannee Forest Scenes Show How Slash Pine Thrives with Proper Forest Fire Control

FOREST MANAGEMENT PAYS DIVIDENDS

INTENSIVE forest management at Suwannee Forest, comprising 204,000 acres in the very heart of the Coastal Plains Region near the headwaters of the Suwannee River, in Southeast Georgia, now in its eleventh year, has proven highly profitable. With the elimination of fire it has been demonstrated that forest land can be made to grow 10 or 20 times as much timber as ordinarily and grow it much quicker.

Fire protection and forest education in Georgia are making rapid strides. The people of the Southeast are awakening to a fuller realization of the need to maintain and improve a natural resource that is second to none and which with just a little assistance by the hand of man can be made to produce in a gratifying way.

Purchased in 1925 by the Superior Pine Products Co., of Kalamazoo, Mich., the Suwannee Forest is the optimum range of slash and longleaf pine.

Prior to the time it was acquired, fire protection was practically unknown in the vicinity, the entire acreage being burned over periodically, sometimes every other year. Like millions of other acres surrounding it, the land was covered by

Fire Protection and Studied Practice Prove Profitable in Suwannee Forest

Slash Pine Rapidly Replacing Longleaf and Area Becoming More Heavily Stocked

Radio Efficient in Supplementing Telephone Communication

By

W. M. Oettmeier

Forest Manager, Fargo, Ga.

stands of longleaf pine and cypress, the longleaf pine averaging only 20 to 30 trees per acre.

The first fire protection system included three 85-foot steel lookout towers and about 80 miles of telephone line. Fire breaks were made by a single disc plow providing a shallow trench 12 or 14 inches wide. Six permanent rangers and patrolmen were employed.

In 1933 the forest began to take on a different aspect. Considerably more in-

flammable material on the ground, however, indicated the necessity of more rigid methods of fire protection. Hence, a new type of plow was introduced to make a trench six feet wide. To date approximately 5000 miles of such trenches have been plowed.

During 1933 a fire break system consisting of 20 to 25-foot strips cleared of all vegetation and plowed, the principal ones being graded to form roads, was introduced.

In 1934, radio was adopted as a means of communication. It was the first installation of its kind.

At headquarters in Fargo, Ga., a main transmitting system is now maintained. Fourteen cars and trucks operating in the forest are equipped with radio receivers, in addition to water and fire-fighting tools.

When the towers "spot" a fire, the information is telephoned to headquarters, and by means of triangulation the fire is accurately located on the map in a few seconds. The group of men working nearest to the fire is called and dispatched, with a saving in time of from 30 to 60 minutes as contrasted with former methods. If a fire breaks out in a location considered extremely dangerous or on days when high winds prevail, two or more crews are dispatched.

The use of radio in Suwannee Forest has paid for itself many times over, as may be illustrated by the fact that during the six months prior to its introduction approximately 12,000 acres were burned over. During the two years that it has been used less than 1200 acres have

(Continued on page 68)

10-Year Longleaf Pine in Georgia Managed Forest



487,000 Bales of Cotton
29,650,000 Yards of Cotton Upholstery

USED ANNUALLY BY TIRE AND MOTOR INDUSTRIES

**The Outlet For Agriculture Broadening Every Day
Through Work of the Scientist and Advance of Industry**

"WE may grow most of an automobile on the farm," said Henry Ford recently.

Specifically, as an example, the Detroit manufacturer referred to fibrous plastics which may be grown and after processing be substituted in industrial plants in some degree, at least, for steel in the making of motor vehicles. Fiber gears already have proved successful.

Much has been accomplished in providing industrial outlets for agriculture. This is notably true in the automotive industry. Science is transforming products of the soil into many commodities. What was once waste is now valuable.

Increasing Southern acreages are being utilized to grow materials which only lately have come into wider use. Among these are:

Southern slash pine for pulp, kraft paper and the manufacture of newsprint using pine pulp;

Cotton linters for rayon production;

Tung trees for extraction of valuable oil used in paints;

Soy beans for industrial products and foods in wide varieties;

Cottonseeds as the bases for the production of an array of items;

Sweet potatoes for the production of starch;

Corn, sugar beets and artichokes for alcohol distillation, and

Turpentine as a basis for making synthetic camphor.

The Automobile Industry as a Buyer

THE automobile industry is the largest purchaser of mohair and upholstery leather. It ranks first as a consumer of both of these products and in each case uses 40 per cent of the country's output.

Of lumber, it takes 8 per cent, or 220,000,000 feet every year of the hardwood cut of the country, besides 290,000,000 feet of softwood lumber. As much of the timber in the South is grown on farms, it becomes an important consideration at once to growers in this section.

Of cotton, motor vehicle and tire manufacturers take 487,000 bales, or 9.1 per cent of the total United States mill "take".

**One Manufacturer Will Consume This Year the Product of
72,500 Acres of Cotton Land Besides Wool From More Than
1,000,000 Sheep, the Mohair From 113,000 Goats, 1,365 Car-
loads of Pine and a Variety of Other Southern Products**

The motor makers use nearly 30,000,000 yards annually of cotton upholstery.

The list of their annual purchases is a long one, and it runs into huge figures, as the following examples will show:

PRODUCT	QUANTITY
Paint and Varnish	9,650,000 gallons
Hair and Padding	34,845,000 pounds
Leather	8,650,000 square feet
Brake Linings (asbestos and cotton)	84,200,000 lineal feet

One Company Buys

THE Ford Motor Co., calls heavily upon the products of Southern farms, as its production schedule for 1936 indicates. It reveals the part industry is taking in stimulating agricultural diversification and prosperity. This company alone will use during 1936:

COTTON	116,090,000 pounds Equivalent at 160 pounds per acre to 725,562 acres
WOOL	4,165,200 pounds Equivalent at 4 pounds per sheep to 1,041,300 sheep
YELLOW PINE	1,365 carloads
FLAX	153,400 bushels Equivalent to production of 22,750 acres
MOHAIR	455,000 pounds Equivalent at 4 pounds per goat to yield from 113,750 goats
PINE PITCH	2,607,800 pounds
COWS	Leather Equivalent to 39,000 cowhides
SUGAR CANE	16,250 acres
CASTOR OIL	312,000 pounds
SOY BEANS	1,300,000 bushels Equivalent to yield of 65,000 acres

The Rubber Industry

To the rubber industry, which has such a large part in the production of motor cars, the South

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ern States supply 100 per cent of the following items:

Cotton, Carbon Black, Clay, Pine Tar, Rosin

This industry also uses in varying amounts, many materials available in the Southern states. Among these are:

Rubber Solvent (gasoline)

Aluminum Powder

Mica

Glue

Lime

Mineral Rubber

Paraffin

Lubricating Oils

Lead Compound

Caustic

Litharge

Lithopone

Tire Paint

Hardwood Pitch

Cotton is the principal raw material used in the rubber industry, and 90 per cent of the cotton fabrics employed are produced in the South. Ten years ago the South supplied only 35 per cent of the total.

Approximately 50 to 60 per cent of the materials, exclusive of raw rubber, used in the manufacture of rubber products in

this country, originate in the South either in the raw, semi-finished or finished state.

Rubber manufacturers will require this year 225,000,000 pounds of fabric.

In the manufacture of rubber products, the following list shows the principal materials employed and the percentage each bears to the total used:

Commodity	Approx. Per Cent Used Of Total Materials
Rubber	51
Cotton	13
Reclaimed Material	7
Carbon Black	11
Zinc Oxide	5
Bead Wire	3
Sulphur	2
Mineral Rubber	2

WHAT'S AHEAD IN THE FERTILIZER INDUSTRY?

6,000 More People Employed This Year Than Last

First Three Months' Exports 100 Per Cent Greater

Dollar Value 145 Per Cent Above Last Year

Soy Bean Oil Mills Look to Fertilizer as an Outlet

Plans Advanced for Self Government of Industry

SEVENTY per cent of the commercial fertilizer produced in the United States is made in Southern factories. This section has 350 fertilizer manufacturing establishments with an output valued at over \$64,000,000, according to the census of 1933. These factories pay out each year over \$4,000,000 in wages and spend approximately \$50,000,000 for materials, fuel and power.

The South, besides being the center of fertilizer manufacturing in this country, supplies practically all of the phosphate rock and sulphur, and has an abundance of lime and other raw materials essential to plant growth. The annual production of phosphate in the South runs to 3,000,000 tons; sulphur, 1,500,000 tons, and lime, 1,000,000 tons.

The fertilizer industry employed 6,000 more persons last year than were employed in the preceding period. Normally employees number about 16,000. Last year there were 22,000, and at the present time there are approximately 14,000 on the payrolls.

Foreign trade indications in fertilizer and fertilizer materials point to encouraging increases. The Department of Commerce figures for March exports show 179,000 tons valued at more than \$2,064,000, which brought exports for the first three months of the year to a tonnage 100 per cent greater and 145 per cent larger in dollar value than in the corresponding period of 1935. Sharp increases are being reported in the export of all groups of fertilizer materials.

Concern was felt when the Tennessee Valley Authority last year inaugurated the policy of distributing superphosphate fertilizer free, but manufacturers who have watched the government's plant food experiments see little possibility of strong Federal competition in this field.

The TVA experiment plant has a productive capacity of approximately 45,000 tons annually, and fertilizer is being distributed to 20 farmers in each of the 100 counties in the "Valley" for the purpose of experimentation in the prevention of soil erosion by the growing of cover crops.

[Editor, *Manufacturers Record*]

By

Charles J. Brand,

Executive Secretary and Treasurer,
The National Fertilizer Association.

PRELIMINARY estimates made early in the year indicated that the consumption of fertilizer this spring would be approximately 10 per cent above 1935. In a normal season this would have been realized, but the season was late and extremely wet throughout the South, and this, coupled with severe storms and disastrous floods throughout the country, undoubtedly will somewhat curtail consumption. It appears now there will be some increase over last year, but a definite prediction cannot be made.

Test New Raw Materials

IN the use of raw materials for fertilizer manufacture, soy bean meal is claiming considerable attention. Heretofore the supply of this material has been utilized in the manufacture of animal feeds. With increased production capacity, due to the fact that oil mills are being adapted to the grinding of soy beans, the fertilizer market is being explored as a possible outlet for the future.

Experimental plants for the manufacture of "calcined phosphate", a product developed by the research of K. D. Jacob of the Bureau of Chemistry and

Soils of the U. S. Department of Agriculture, are determining the practical problems of producing this material. Research of its agronomic value also is being carried on.

Industry Returns and Fertilizer Prices

SOME publicity has been given to a proposed investigation of the mixed fertilizer industry to ascertain whether there has been an unlawful agreement in restraint of trade resulting in unduly high prices. A few facts will show how unfounded are any such charges.

A summary of the tax returns of fertilizer companies for the years 1927 to 1933 inclusive, shows a net loss for these years of more than \$4,000,000. In only two years during that period, 1928 and 1929, did the combined figures of all fertilizer corporations making returns show a combined net income of more than \$5,000,000, and in these years the net income was less than 5 per cent of the sales of those reporting.

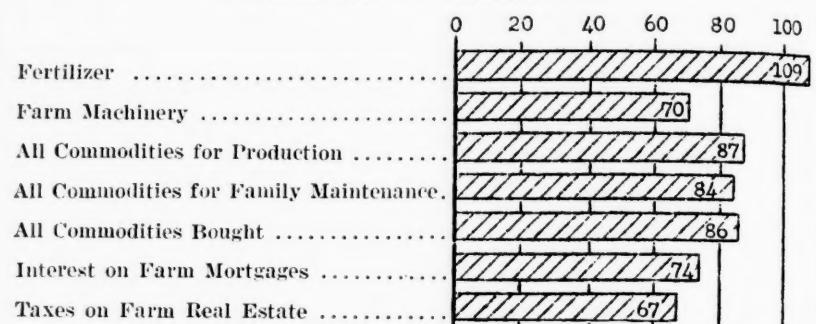
Based on an average for seven years of 294 reports each year to the Bureau of Internal Revenue, the industry had total gross sales of \$1,044,164,000, or an average of practically \$150,000,000 per year, and showed a *net deficit* for the whole period of \$4,219,000. With this operating loss, it is obvious that the mixed fertilizer industry, with an investment of approximately \$250,000,000, has taken no advantage of the farmer.

Comparable Figures Not Available

IN 1934 and 1935, most fertilizer corporations made a net profit on their operations. The net income was materially reduced by losses from uncollectible notes and accounts from previous years. The Internal Revenue Bureau has not made available figures for 1934

PURCHASING POWER OF FARM PRODUCTS IN TERMS OF PRICES PAID BY FARMERS

Indexes Compiled by the U. S. Department of Agriculture
March 15, 1936 — 1910-1914 = 100



and 1935, similar to those referred to for 1927-1933.

Statistics compiled by the U. S. Bureau of Agricultural Economics, and published in their series of price indexes, show that based on 1910-1914 average, the farmers' dollar in 1936 buys more fertilizer than any other of the commodities he purchases. The table here-with shows graphically the situation as of March 15, 1936.

Industry's Plan of Self-Government

THE fertilizer industry's plan of self-government is pending before the Federal Trade Commission. If approved by the Commission and put into operation, it will go far toward the elimination of unfair trade practices, unjustified and uneconomic price wars and other unethical methods of competition that have been so disastrous to both producers and customers in the past. It is expected the Commission will act in the near future and that its operation may begin under the plan.

The trend toward increased concentra-

tion of plant food in commercial fertilizers continues, having grown from a total average plant food content of 13.9 per cent in 1920, to 19.1 per cent in 1934. This increased concentration normally would definitely reduce the amount of filler in fertilizer, which has been offset somewhat by the use of new materials which, in more concentrated form, require fewer pounds of raw material to furnish each unit of plant food.

Trends

PROBABLY the most outstanding trend in fertilizer manufacture during the last year and for the immediate future, is toward the elimination of inert fillers from fertilizers and the substitution of limestone, dolomite, or similar materials. This change is occurring largely because agronomists are finding that fertilizers, which leave acid residues, may, in the case of an already acid soil, fail to prove satisfactory.

Baltimore and Ohio Promotions

President Daniel Willard of the Baltimore and Ohio Railroad announces the election of J. S. Murray, assistant to the president, as vice president of the company, and the election of J. J. Ekin, comptroller, as vice president and comptroller. Mr. Murray has had wide experience in various branches of railroad service, and has acted as Mr. Willard's assistant for the past 25 years. Mr. Ekin began his railroad career in 1895 with the Pittsburgh and Western Railway, now a part of the Baltimore and Ohio. He was transferred to the general offices of the Baltimore and Ohio in 1902.

Announcement is also made of the appointment of Charles A. Rausch, secretary to the president, as assistant to the president. Mr. Rausch entered the service of the Baltimore and Ohio in 1901 and became identified with the president's office in October, 1909. He was in charge of Mr. Willard's office in Washington during the World War while the latter served as Chairman of the Advisory Commission of the Council of National Defense, and later as Chairman of the War Industries Board.



Agriculture and Industry Partners In BLAZING NEW FRONTIERS

Growing Industrial Use of Farm Products Evident

Soy Bean and Tung Tree May Supplant Cotton

Agriculture Needs More Science—Less Politics

LOOKING to the farms to supply industry with new materials, available from existing surpluses and from new crops, advocates of a farm problem solution based on abundance rather than scarcity met last month for a three-day conference in Detroit.

Reporting great strides had already been made in the industrial utilization of farm products, agriculturists, industrialists, chemists and research engineers at the second conference of its kind sponsored by the Chemical Foundation and the Farm Chemurgic Council, predicted greater strides in the immediate future.

In striking contrast to the Administration's efforts to raise farm prices and income through the economic-theory of scarcity by curtailing production, conference leaders pointed to the gradual absorption of much of the domestic farm surplus by industry, urged increased production at lower prices so that industry can profitably expand consumption of farm products, thereby increasing farm purchasing power and in turn creating enlarged farm demand for manufactured products, resulting in stimulating industrial employment.

Theories of scarcity as improper means of solving agricultural problems were denounced by these specialists in agriculture, industry, research and chemistry.

Surpluses Viewed as Boon To Higher Standards of Living

William J. Cameron, of the Ford Motor Co., held that surpluses are a stimulant to all elements in economy to find new uses for the absorption of excess production, that the pressure of an abundance of many commodities on the market stimulates industry and tends toward raising standards of living, as contrasted with stagnation and want, which result from a system of restrictive crop control.

In his welcoming address, Mr. Cameron took occasion to remark that while the work of the conference would assure the participants an almost universal welcome, that for many reasons "professional saviors of the farmer don't seem to be much interested in the work you are doing. Your work does not contribute to the political revolution they are striving for, so they are not any too glad to see you tackling these problems in a sensible fashion.

"Fortunately, these professional saviors will not be our salvation. The American people don't have to be saved by anybody. They will accept benefit checks with tongue in cheek, but eventually they will fall back on their ancestral heritage of common sense and things will go on

as ever, and progress will continue to be made."

D. Howard Doane, of St. Louis, president of the American Society of Farm Managers, and head of an agricultural service described as one of the largest farm operators in the nation—controlling 400,000 acres in nearly a score of states, voiced distrust of the helping hand of Government for agriculture except as very critical conditions left no alternative.

Partners For Prosperity

Agriculture will work out its own destiny in partnership with industry, he declared, although he hinted that radical reorganization and long-time planning are primary requisites.

Reviewing what research has done for the soy bean, through raising it from a food for man and cattle to an increasingly valuable commercial crop, Mr. Doane predicted the same thing is about to happen to scores of farm crops.

Industrial Crops Promise Much for South's Progress

Soy beans, tung oils and Southern slash pine are among the crops cited as near future usurpers of King Cotton's throne in the Southern States.

Soy beans, which "grow best in the

South," will soon replace cotton as one of the four major crops of the United States, ventured Mr. Doane.

The tung oil industry "will be of great benefit to the South," reported Dr. C. C. Concannon, chief of the Chemical Division of the U. S. Department of Commerce, who estimated that approximately 2,000,000 pounds of tung oil will be produced in the United States this year from trees grown in Southern groves.

The vast possibilities that have been opened up through researches in the production of pulp, paper and rayon from the slash pine of the South were graphically detailed by Dr. C. H. Herty, director of the Pulp and Paper Laboratory at Savannah, Ga. He also reviewed recent developments in the manufacture of first-grade newsprint paper from Southern slash pine, and pointed out the opportunities for the manufacture of newsprint to compete with stock imported from Canada and Scandinavia.

Pyrethrum, a crop which "thrives best in the South," was described by R. E. Culbertson, of the Crop Protection Institute, who outlined the technique of growing the crop and told of its many uses as an insecticide.

Just as science has wiped out more than half of the pestilences heretofore considered inevitable, so will it wipe out war, Dr. George R. Harrison, of the Massachusetts Institute of Technology, said. Holding that war is economic in origin, he predicted that if science continues to make progress in wresting more and more of the products of nature from the soil for the use of mankind, there will be no further economic need for wars.

Agriculture Promising Field For Science-Minded Youths

More science and less politics was recommended for farmers by L. F. Livingston, of Wilmington, Del., president of the American Society of Agricultural Engineers, who decried the fact that farmers have been discouraged by propaganda to promote the belief that their only salvation lies in Federal Legislation,

while disregarding the help that scientific research has placed at their doorstep.

"We have been telling the farmer that he is beaten before his plow turns a furrow," he said, and "that the world he feeds is conspiring against him. How can we expect to do more than resign him to an inevitable fate and pray to the gods at Washington to save him?

"Countless farmers see their only hope in laws and bonuses. In the meantime, pests riddle their orchards, disease thins their wheat and storms sweep away their top soil.

"We need fewer politicians who are interested only in the farm vote. Give us science in agriculture, and scientific thinking to make the fruits of science more applicable to the farmers as a class."

What is needed is a modern agriculture, brought up to date by science, to keep pace with the growing demands for farm produce in industry, said Mr. Livingston, who pleaded for youth with a modern outlook on the agricultural problem to enter farming as a vocation. He sounded a note of warning when he declared "the new farmer will have to know infinitely more than he does now to produce the crops required as industrial raw stuffs."

Trek Back to Farms Would Aid the Nation

Unless scientific methods are adopted, decadence of the soil which "always leads to social and political decadence" will take place in this country, warned Dr. Jacob D. Lipman, president of the Association of Land Grant Colleges. At the present rate the plant nutrients in our land will be exhausted within a period of 200 years, "though certain compensating factors may extend this period," said Dr. Lipman. He called attention to the fact that we as a nation are becoming more and more city-dwellers, and that now only 21% of the population are engaged in agriculture, whereas for a generally healthy condition about one-third of the people should be so engaged.

Chemists and Engineers Advance Art of Synthesis

That farm destiny rests largely in the test tube was emphasized by speaker after speaker, from among the 1,000 agricultural and scientific experts brought together from all parts of the nation at the Detroit conference for the avowed purpose of promoting cooperation between science, industry and agriculture, and so to point the way to new and enlarged uses of farm products.

Illustrating the contention of chemical and other industrial leaders that the key to the problem of handling farm surpluses lies in finding new uses and not in crop restriction, Dr. Charles M. A. Stine, vice president and chemical director of

E. I. du Pont de Nemours & Co., declared that the raw linters from approximately 9,000,000 acres of cotton would be required this year to supply the rayon and several related new industries

Items drawing upon this 9,000,000 acres of cotton production mentioned by

Dr. Stine were: Rayon, smokeless powder for sporting purposes, pyroxylin plastics, acetate plastics, pyroxylin film, dopes and lacquers.

The increasing use of synthetic materials is an outstanding feature of recent research developments, said Dr. Stine in chronicling some major achievements, briefly sketched as follows:

A whole range of new coated fabrics; New finishes have revolutionized the paint industry;

New refrigerants with unique properties have made possible the expansion of mechanical refrigeration in the home, and now air-conditioning bids fair to set new standards in building and transportation;

Man-made camphor is purer than that obtained from the camphor tree; Musk, one of the rarest of perfume bases is synthesized and sold at a fraction of what the natural product costs;

Nitrates and ammonia from the air rule that market, and Urea is now a factory product.

Economic Independence Spurred By Achievements of Research

Turning to the effect of research upon cost, Dr. Stine showed that whereas two sizes of electric refrigerators sold in 1928 for \$270 and \$365, respectively, more efficient and better made units in every particular now sell for \$184 and \$254. A radio tube that sold in 1923 for \$9.00, and has since been so improved in design as to have almost no relationship to its predecessor, sells now for 50 cents. While quantity production naturally has an important bearing on this cost figure, research and engineering developments were major contributing factors in cutting costs.

The latest addition to the growing list of pulp and paper mills in the South is a \$5,000,000 plant for Charleston, S. C., by the West Virginia Pulp & Paper Co., Thomas Luke, president, of New York, designed for the production of 250 tons of kraft linerboard daily.

The St. Joe Paper Co., was recently organized with Sydney Ferguson, of New York City, president, to erect a \$7,500,000 kraft linerboard plant at St. Joe, Fla., with a daily capacity of 350 tons. Sponsored by Alfred I. duPont interests, the chairman of the board is George H. Mead, nationally known paper manufacturer.

The third proposed mill is that of the Container Corporation of America, headed by Walter P. Paepcke, Chicago, to be erected at Fernandina, Fla., at a cost of \$5,500,000, designed for the production of pulp and kraft paper. George H. Hardy, New York, is the engineer.

At Savannah, Ga., a \$4,000,000 plant, designed for the production of 125 tons of kraft paper and 11,000,000 bags daily is being completed by the Union Bag & Paper Corp., New York, Alexander Calder, president.

Construction is under way at Crossett, Ark., on a \$4,000,000 plant for the Crossett Lumber Co. interests to have a capacity of 150 tons of sulphate pulp daily, 100 tons of which will be converted into bag and wrapping papers.

The Champion Paper & Fibre Co., of Hamilton, Ohio and Canton, N. C., is investing \$3,500,000 in a new plant on the ship channel at Houston, Tex., which will turn out 165 tons of pulp daily, which will be transported by barge to the company's paper plant in Hamilton, Ohio.

Production of crops for the manufacture of alcohol, paper, proteins and vegetable oils marks the beginning of this program and there are others that offer exceptional opportunities. Meanwhile chemical science promises to produce still more industrial crops.

The opportunities in the South for building up new farm industries are unlimited. Already grown on a major scale, industrial crops promise to play a steadily increasing role in Southern agriculture, through the proper alliance of agriculture, industry and science and scrapping the entire program of the gospel of scarcity and acreage reduction.

Southern Transit Lines Buying New Equipment

City and Suburban Transport Companies Add to Fleets of Buses, Trackless Trolleys and Streamlined Street Cars

TRANSIT companies serving municipalities, operators of sightseeing tours, street railway and interurban lines, and inter-state motor coach passenger systems in the Southern States are making substantial investments in new rolling stock.

The majority of the new motor coaches recently delivered and on order are for extension of routes and to care for increased business on existing lines. However, a number of the new purchases are for replacement purposes. Most of the well-managed companies retire from service obsolete and worn out units on a carefully prepared schedule.

A number of trolley line operators in Southern towns, to avoid the expense of relaying ties and rails that require replacement on busy thoroughfares, are cooperating with the municipalities in resurfacing pavements and installing trackless trolleys and motor coaches. Still others are installing the latest type, high-speed, practically noiseless street cars, embodying many automotive features, to provide faster and more comfortable and attractive service. Trolley line companies are supplementing existing electric line service with buses and extending routes into fast-growing sections of the cities and nearby suburbs.

THE street car still carries more passengers than buses, elevated railways and subways combined. Recent improvements, based on research, have to a marked extent, increased the efficiency of trolley equipment. Competing and supplementary transit units, powered by internal combustion engines and electric motors, operated as trackless trolleys, are proving flexible and economical, and in consequence there has been a rapid increase in this type of service.

TIS a far cry from the first "jitney buses" of about 20 years ago to the present elaborate motor buses engaged in urban transit service. The evolution marks as great a transition as the change from horse and cable cars to electricity. Originally make-shift bodies, mounted on standard-motor car or truck chassis, carried six to ten passengers. Today's motor buses, especially designed

for comfort and convenience, have seating capacities up to 40 passengers, and travel safely at high speeds.

Adoption of the motor bus for mass transportation in small towns and for suburban lines in the larger cities is growing rapidly. Only a few weeks ago Montgomery, Ala., which claims the establishment on April 15, 1886, of the world's first successful electric street car system, replaced its trolleys with a fleet of gasoline-driven motor vehicles.

As the horse-drawn street cars of the 80's were displaced by the cable and electric cars, so obsolete trolleys are giving way to the latest products of equipment manufacturers, ushering in another era in urban transportation.

THE decline in trolley operation has been largely in the small communities. San Antonio, Tex., with a population in

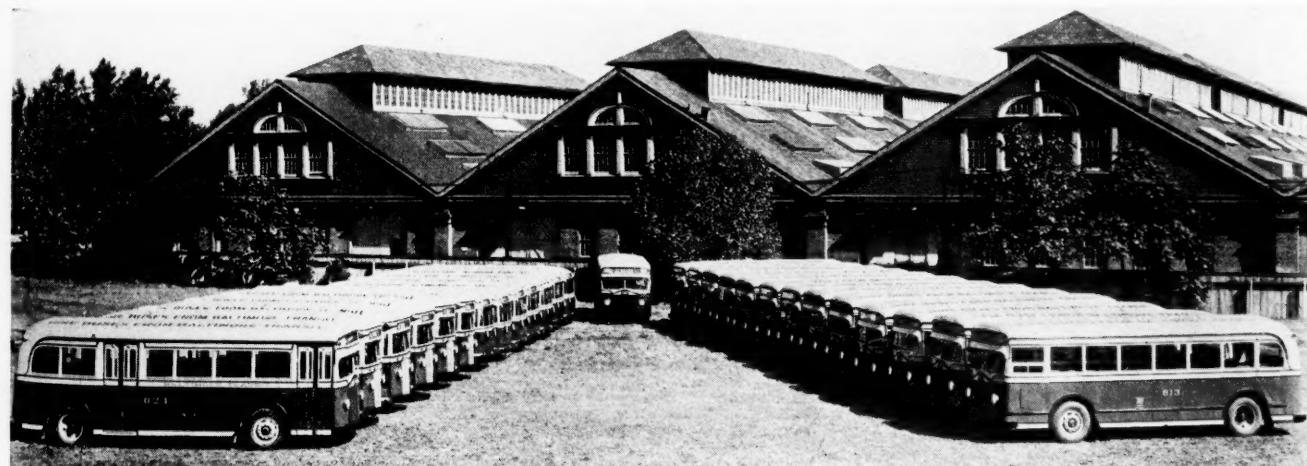
excess of 230,000, has been the largest city to turn exclusively to motor buses for mass transportation. None of the larger cities of half a million or more population, has seriously considered abandonment of its street railway facilities, although many are using trackless trolleys and buses on an extensive scale.

In the past decade more than 125 of the 376 cities of more than 25,000 population have turned to motor buses or trolley-bus service. In about 200 other cities the motor bus and the trolley bus are used to supplement and extend the street railway service. Bus passengers now represent about 16 per cent of the estimated 35,000,000 passengers carried each day by the nation's transit lines.

The first successful built-for-the-purpose motor buses began to become popular in 1921, as operating companies recognized the possibilities of the automotive vehicle for public passenger transportation. Now nearly 20,000 motor buses operate in transit service on about 25,000 miles of route. Companies using motor buses in city service, including some 190 street railway systems, number 825. Buses used by street railways number approximately 13,000. Since the advent of the motor bus in transit service, the trackage of electric street railways, has decreased from 44,000 miles to 26,000 miles.

THE roster of cities of the South which have turned in whole or in part to motor buses for transit service stretches from Baltimore to Jacksonville and from Atlantic Seaboard cities to communities along the Rio Grande near the Mexican border. Among the more im-

Part Of Large Bus Fleet Used By The Baltimore Transit Co.—
Group of Motor Coaches Manufactured by The Twin Coach Corp.



portant installations are bus fleets at:
 Roanoke, Norfolk and Newport News, Virginia
 Washington, and the District of Columbia
 Durham, Raleigh, and Charlotte, North Carolina
 Charleston and Columbia, South Carolina
 Savannah and Atlanta, Georgia
 Montgomery and Birmingham, Alabama
 Kansas City and St. Louis, Missouri
 Tulsa and Oklahoma City, Oklahoma

The list of Southern cities in which transit lines are adding steadily to bus fleets and which are adapting buses in initial installations grows steadily.

Among the latest orders placed are those of:

NORTHERN TEXAS TRACTION CO.,

Fort Worth, Tex.
 Eleven 30-passenger coaches

Twin Coach Corp., Kent, O.

Four 30-passenger motor buses powered by Hall-Scott Horizontal engines

A. C. F. Motors Co., New York City

CITIZENS RAPID TRANSIT CORP.,

Newport News, Va.
 Three 30-passenger motor coaches

A. C. F. Motors Co.

PUBLIC SERVICE CO.,

St. Louis, Mo.
 Ten 31-passenger Model CQ type buses

Mack-International Co., New York City

Twelve 37-passenger Model 37R transit type buses

Twin Coach Corp., Kent, Ohio

Twenty-four 36-passenger Model 731 transit type buses

Yellow Coach Co., New York City

ROANOKE RAILWAY & ELECTRIC CO., and SAFETY MOTOR TRANSIT CORP.,

Roanoke, Va.
 Twelve 24-passenger Metropolitan type buses

White Motor Co., Cleveland, Ohio

SAN ANTONIO PUBLIC SERVICE CO.,

San Antonio, Tex.
 Fifteen 30-passenger coaches

Twin Coach Corp.

TENNESSEE PUBLIC SERVICE CO.,

Knoxville, Tenn.
 Nine 30-passenger coaches

Twin Coach Corp.

BLUE AND GRAY SIGHTSEEING TOURS,

Baltimore, Md.
 Five 39-passenger buses

White Motor Co.

VIRGINIA STAGE LINES, INC.,

Baltimore, Md. and Lynchburg, Va.
 Two 25-passenger buses

White Motor Co.

DUKE POWER CO.,

Spartanburg, S. C.
 Five 23-passenger buses

White Motor Co.

CAPITAL TRANSIT CO.,

Washington, D. C.
 Eight 33-passenger buses
 Two 36-passenger buses

A. C. F. Motors Co.

LOUISVILLE RAILWAY CO.,

Louisville, Ky.
 Two 30-passenger coaches

Twin Coach Corp.

A Streamlined Trolley With Automotive Characteristics
 Of A Type Built For The Baltimore Transit Co.



One of New Coaches for Capital Transit Co.

Washington firm adds extensively to motor bus fleet and expands facilities generally

Present day improvement in street railway transportation marks an attainment of comfort, speed and silence surpassing anything that has gone before.

THE trolley bus or trackless trolley is the evolution of the electric street car. Modern in every respect and possessing numerous automotive characteristics, they have a flexibility approaching that of the individual-powered gasoline motor bus unit. Thus, trackless trolleys aid in relieving traffic congestion, and offer greater safety to passengers by permitting them to enter and leave the vehicle at the curb or roadside.

A recent installation of this type of equipment was made by the Shreveport (La.) Railway Co. Eleven new 30-passenger trolley buses were supplied by J. G. Brill Co., of Philadelphia, Pa. The units are fitted with Westinghouse air brakes and General Electric motors and control equipment. The overhead electric equipment was furnished by the Ohio Brass Co., Mansfield, Ohio.

The J. G. Brill Co. also booked an order for nine 30-passenger trackless trolleys for the St. Joseph (Mo.) Railway, Heat, Light & Power Co.

Hand in hand with the rapid progress in the use of motor buses and trolley buses goes the improvement of the electric street car. There have been important changes in recent years toward improved design and greater efficiency,

faster acceleration, quicker deceleration and higher speeds.

Some of the latest types of the modernized trolley are in service in Baltimore and Washington. The Baltimore Transit Co. early this year ordered twenty-seven 54-passenger street cars from the St. Louis (Mo.) Car Co.

STREAMLINED bodies, light weight, quiet movement, fast pick-up and quick acting brakes, are among the characteristics of the new cars.

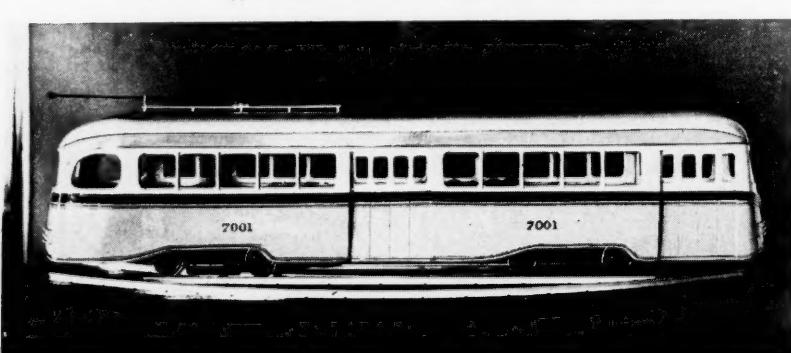
The car body is literally "hung on rubber bands" in the form of springs which are composed of thick concentric rings of rubber. Their springing action is a shearing motion, utilizing the stretching instead of the compression qualities of the rubber material to absorb shocks.

The wheels are virtually revolving springs, the tire which rests on the rail, being of steel, while inside the tire are rings of rubber, also "in shear," to absorb vibrations arising from any irregularities in the track.

The new cars start and stop as quickly as the most modern automobile, yet the new control of acceleration and braking combined with the vibrationless balancing of body, trucks and springs, protects the passenger.

The interiors of the new cars afford more comfortable seats, better lighting, roomier aisles and indirect heating and ventilating system automatically controlled.

ONE of the newer developments in transportation that is likely to have its effect on city transit service is the "Auto-Railer" developed by the Evans Products Co., Detroit. As its name implies, the independently powered unit can go from rail or road and street and back to rail again. Utilizing the efficiency, the lightness, low cost and flexibility of automotive principles of design, it retains the safety and speed of the rails in a modern transportation unit. Its field of usefulness opens new possibilities in the handling of passenger traffic.



REVITALIZING RAILROADS

RAILROADS are not dying institutions and are still the backbone of the nation's transportation system, L. W. Baldwin, president of the Missouri Pacific Lines, very appropriately observed in a recent speech. The transportation problem, he pointed out, is misunderstood by more people and to a greater extent than any other problem in the country.

What the railroads have accomplished in recent years is a remarkable tribute to an industry whose activities are bound within prescribed limits by government regulations, and hampered by financial and labor difficulties. Red tape of government regulation is largely responsible for the plight in which the railroads found themselves when new competitive media began to develop. Higher taxes, social security laws, increased material and fuel costs, and higher wages demanded by union labor and approved by the government have added to the financial burden of the railroads, making it difficult to get fresh capital.

When any criticism is directed against the railroads because they have not made greater progress in modernization, let us ask what other industry could have done as well with its machinery or operating units regulated, both as to time of operation and how many employees must be engaged to handle the unit, hours of labor allowed and rate of pay set, and have a definite price set by the government at which the product could be sold. These restrictions the railroads have had to face, and at the same time see rapidly growing competing transportation agencies—largely unregulated and even subsidized—absorb the cream of their business.

Public Money Builds Competitive Systems

Although railroads have had ample facilities to handle all the traffic of the nation for the past 12 years, Mr. Baldwin observed, some \$25,000,000,000, or about the total value of the railroads in the United States, has been expended for additional transportation facilities. Most of this money was public money.

Within the past year the railroads have taken on new life. They have added new units of transportation that are likely to revolutionize the whole railroad field of activity and service. Light-weight, streamlined trains, Diesel powered and improved steam locomotives and electric engines, with air-conditioned passenger coaches and whole trains mark the advance being made. More safety devices and automatic control features have been installed. The extent of this modernization has only been limited by the lack of available capital.

In the handling of freight, railroads have been seeking ways to expedite movement and increase the efficiency of service. Store-to-door pick-up and delivery of freight are being widely expanded.

With the general improvement in business in recent months, the railroads of the country have benefited despite the evolution of new transportation media that have taken large blocks of their traffic.

\$162,000,000 Earnings Indicated for this Year

Indications are that rail carriers of the country will show a net income of \$162,000,000 this year, after all charges,

contrasted with bare coverage of such charges in 1935. With the prospect of increased earnings, the railroads are again buying in encouraging volume products of the heavy goods industries.

In the first four months of this year, it is estimated, the railroads have spent \$250,000,000 for equipment, rails, cars, locomotives, or nearly double similar expenditures in the corresponding period of 1935.

Railroads will probably purchase not less than 50,000 freight cars this year. The depression has greatly reduced rolling stock. Increased car loadings will likely develop car shortages in some types of equipment.

Recent car orders were placed by the Chesapeake & Ohio for 5,000 freight cars with the American Car & Foundry Co., Pullman-Standard Manufacturing Co., General American Car Co., Bethlehem Co., and the Ralston Co.

The Norfolk & Western awarded contract for 1,000 57½-ton steel hopper cars to the Pressed Steel Car Co. and the Virginia Bridge Co.

A program authorizing the air-conditioning of 57 more passenger cars will give the Baltimore & Ohio and its western affiliate, the Alton, 480 air-conditioned cars to meet anticipated heavy demands of the vacation season.

Air-conditioning has been a rapid development of the Baltimore & Ohio, since it was not until 1930 that the first railroad car in the world—a B. & O. diner—was air-conditioned, followed by the first completely air-conditioned train in 1931 and the first long distance sleeping car train in 1932.

It was not until recently, however, that officials of the Baltimore & Ohio found that they had revived, instead of

discovered the most revolutionary improvement in railroad passenger travel in nearly 75 years. In 1884 it was found the B. & O. installed its first air-cooling unit in a railroad passenger car a huge ice box in the front of the car fitted with air ducts so that the car's motion caught up some of the breeze it created and carried it back over the ice and into the car proper.

New High Purchases For Carriers in 1936

Dr. Julius H. Parmelee, director of the Bureau of Railway Economics, expects the rail carriers of the United States to purchase and consume more material and supplies in 1936 than in any year since 1931 when their expenditures amounted to \$935,000,000.

Probably 50,000,000 ties will be bought this year, an increase of 34 per cent over 1933.

Dr. Parmelee declared "as traffic returns to the railroads, we may expect an increase in tie renewals, a maintenance reserve comparable to that of 1929 will undoubtedly be built up, but for the present we may only expect a maintenance program consistent with traffic and safety demands. The demand today is greater than at any time since 1931.

"During the first quarter of the year the Class I carriers increased their maintenance of way expenses nearly 20% over the same quarter of 1935. A part of the increase was due to higher wages, part to increases in material costs and the remainder to an expanded maintenance program.

"Indications are that there will be substantial increases in 1936 in both freight and passenger car-miles. From a traffic standpoint, the year 1936 should approximate the levels of 1931 if current trends are continued for the balance of the year.

"During the first quarter of 1936 operating revenues increased 13.5%. Although current trends indicate for the present year a gain in traffic to about the 1931 level, operating revenues will probably be somewhat short of that level because of the decline in receipts per unit of traffic handled. Operating expenses will also be less than the 1931 level."

Outlook Bright

Railroads have been encouraged to make additional outlays in equipment because traffic has increased and more buying will develop if the business trend continues up. A further strengthening of the railroads' economic position will result in greater use of income for the purchase of new equipment and thus aid industries serving rail carriers with materials and supplies.

\$355,504,000 IN CONSTRUCTION AWARDS IN FIVE MONTHS

CONTRACTS awarded during the first five months of this year in the sixteen Southern States covering construction, building and engineering operations run to a total of \$355,504,000, a higher figure than for any similar period on record with the exception of 1929. Compared with \$190,060,000 of awards in the first five months of last year, the 1936 total to June 1 represents a gain of 86%. Compared with \$234,716,000 of contracts let in the first five months of 1934, the January to May total this year shows a pick-up of 50%.

Industrial plant awards aggregating \$105,085,000 in the five-month period place this classification in first position. Road, street, and bridge awards amounting to \$101,321,000 are second, with city, county, government and state buildings third with awards running to \$55,993,000.

Industrial and engineering projects combined, placed under contract to June 1, 1936, total \$133,473,000, which represents an increase of more than 130% compared with awards for like work in the similar period last year of \$57,792,000.

One of the most encouraging features of current construction activity is the unusually heavy volume of projected undertakings. During May the "contracts to be awarded" total ran to \$93,076,000, while last month the total exceeded \$97,500,000. More than \$180,000,000 of work in the "planned stage" announced during the last two months indicates construction this summer and early fall will be maintained in volume equalling or perhaps exceeding that now in progress.

Particular encouragement is to be gained from a consideration of the large number of important industrial projects now "on the boards" of architects and engineers.

One of the largest industrial plants projected is that of the St. Joe Paper Co., sponsored by Mead and Alfred I. duPont interests, for St. Joe, Fla., and to involve an estimated investment of \$7,500,000. George F. Hardy, New York engineer, who is engaged in preparing plans and specifications for a \$5,000,000 paper plant to be built at Fernandina, Fla., by the Container Corporation of America, of Chicago, Ill., was selected as engineer for the new paper mill.

The Texas-Empire Pipe Line Co., of Houston, proposes a pipeline project in the midwest, starting in Missouri, to cost \$4,500,000.

Work will get under way this month on a \$1,500,000 cement plant at Leeds, Ala., for the Universal Portland Cement Co., a U. S. Steel subsidiary.

The Monsanto Chemical Co., with headquarters in St. Louis, has launched

SOUTHERN CONSTRUCTION ACTIVITY

May, 1936

Contracts to be Awarded

GENERAL BUILDING

	Contracts Awarded	Contracts to be Awarded
Apartments and Hotels	\$ 2,035,000	\$ 1,540,000
Association and Fraternal	243,000	100,000
Bank and Office	1,256,000	452,000
Churches	170,000	641,000
Dwellings	3,751,000	1,658,000
Stores	742,000	2,357,000
	\$ 8,197,000	\$ 6,748,000

PUBLIC BUILDINGS

City, County, Government and State	\$ 7,413,000	\$ 14,828,000
Schools	2,526,000	5,085,000
	\$ 8,197,000	\$ 6,748,000

ROADS, STREETS and PAVING

\$ 15,643,000	\$ 20,122,000
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INDUSTRIAL and ENGINEERING PROJECTS

Drainage, Dredging and Irrigation	\$ 157,000	\$ 5,494,000
Filling Stations, Garages, Etc.	228,000	305,000
Industrial Plants	8,014,000	35,909,000
Levees, Revetments, Seawalls, Dikes, Etc.	540,000	1,675,000
Sewers, Drainage and Waterworks	1,381,000	7,420,000
	\$10,320,000	\$50,803,000
TOTAL	\$44,099,000	\$97,536,000

an expansion program calling for an outlay of approximately \$6,000,000, to feature extension of facilities at St. Louis and in Southern phosphate fields.

A proposed oil refinery in the Rodessa field (Louisiana), calls for an investment of \$500,000, while a like project in the same section will entail an expenditure of \$1,200,000. Proposed expansion of a Hannibal (Mo.) shoe factory involves \$275,000. A LaFollette (Tenn.) coal mine operation in the planned stage calls for an investment of \$100,000, while a mining project in Alabama will cost \$500,000.

An addition to a Louisville (Ky.) distillery will cost \$150,000. Rebuilding a Lexington, N. C., furniture plant, at a cost of \$500,000, is planned.

Another very encouraging development of the past month is the announcement by public utilities in the Southern States of ambitious expansion programs, made necessary by increased demands for power facilities and to carry out extensive rural electrification programs. The Eastern Shore Public Service Co., of Maryland, plans to spend \$750,000, while the Virginia Public Service Co., proposes improvements involving \$1,375,000.

The most important industrial project of last month was a coal stripping operation put under way at Bevier, Mo., which calls for an investment of \$1,000,000, the feature installation being a power shovel capable of lifting a car-load of coal at a single bite.

Indicative of the rapid growth of the cannery industry in the South and Southwest is the award last month of a contract for \$250,000 expansion of a Houston, Tex., can plant, the third enlargement of the plant since it was built

(Continued on page 40)

SOUTHERN CONSTRUCTION ACTIVITY

First Five Months 1936

Contracts Awarded Contracts to be Awarded

General Building

Apartments and Hotels	\$10,614,000	\$11,939,000
Association and Fraternal	409,000	1,080,000
Bank and Office	2,404,000	1,843,000
Churches	1,110,000	3,727,000
Dwellings	15,516,000	12,327,000
Stores	5,185,000	8,214,000
	\$35,238,000	\$39,130,000

Public Buildings

City, County, Government and State	\$55,993,000	\$101,403,000
Schools	29,479,000	44,056,000
	\$ 85,472,000	\$145,459,000

Roads, Streets and Paving

	\$101,321,000	\$157,228,000
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Industrial and Engineering Projects

Drainage, Dredging and Irrigation	\$ 2,493,000	\$79,892,000
Filling Stations, Garages, Etc.	2,068,000	3,575,000
Industrial Plants	105,085,000	225,038,000
Levees, Revetments, Seawalls, Dikes, Etc.	4,749,000	7,218,000
Sewers, Drainage and Waterworks	19,078,000	41,704,000
	\$133,473,000	\$357,427,000
Total	\$355,504,000	\$699,244,000



When you order steel from a warehouse, you want quick delivery. But you also want steel in readily usable form and exactly suited to your needs.

You get that kind of service when you order from any one of the J & L Warehouses serving the great industrial South. Quick delivery is assured through J & L Warehouses situated at New Orleans, Cincinnati and Pittsburgh. Shipments are generally made immediately on receipt of your order; always within 24 hours.

Being an integral part of the Jones & Laughlin Steel Corporation, each J & L Warehouse carries complete stocks carefully classified as to qualities, and trained steel men know exactly what grade will best meet your needs. You will find, too, that because every J & L Warehouse has the most modern cutting, forming and bending equipment, you can get the steel you need for construction and maintenance requirements in ready-for-use form—and thus save time, money and trouble.

Fast, Complete Steel Service for the South..through **J & L WAREHOUSES**

Take advantage of the fast complete service that J & L Warehouses are daily providing to steel users in the South. Order from the warehouse nearest you.

Additional J & L Service for Southern Industry

Complete steel stocks are carried at New Orleans, Cincinnati and Pittsburgh. Stocks of pipe, sheets, spikes and wire products, together with reinforcing bars and a bar fabricating yard, are situated at Memphis. At Louisville, J & L maintains a bar fabricating yard and a large stock of reinforcing bars. Fabricating shops are operated at Pittsburgh, Cincinnati and New Orleans. Mill service is readily available through offices situated in Atlanta, Cincinnati, Dallas, Houston, Tulsa, Pittsburgh, Philadelphia and St. Louis. The district manager in your area will welcome the opportunity to discuss your steel requirements with you.

JONES & LAUGHLIN STEEL CORPORATION
AMERICAN IRON AND STEEL WORKS
PITTSBURGH, PENNSYLVANIA

**J & L
STEEL**

(Continued from page 28)
 three years ago. The Cudahy Packing Co. awarded a contract for a \$500,000 plant at Albany, Ga. Swift & Co., Armour & Co., and other nationally known firms are mentioned prominently in expansion of Southern facilities. Birmingham, Ala., is to get a \$300,000 packing plant, while cheese, dairy and cold storage plants have been let to contract at various scattered points.

Contracts for a large coal mine development at Hanger, Va., was let last month.

The largest, privately financed building operation placed under contract last month in the South was a 17-story bank, office and store building for the Homeland Investment Co., at Durham, N. C. Raymond Fuson and associates, announced plans had been

completed for a \$600,000 hotel at New Bern, N. C. A \$200,000 office building is proposed at Miami Beach, Fla.

In the apartment house and hotel construction field, activities are extensive and widespread, costly projects, having been placed under way during May in Washington, D. C.; Miami, Miami Beach, and Fort Lauderdale, Fla.; Houston and Dallas, Tex., and Mountain Lake, Va.

Some Representative Projects In The South Last Month

Proposed Construction

Ala., Birmingham—S. H. Kress & Co.	
New store	\$750,000
Ala., Birmingham—Armour & Co., Chicago, Ill.	
Improvements to former plant of Birmingham Packing Co.	300,000
Ala., Florence—Florence Cotton Mill	100,000
Renovation and repair program	
Ala., Leeds—Universal Atlas Cement Co.	1,500,000
Erect new stockhouse, install new plant and quarry machinery, erect office building, laboratory and repair shops	
D. C., Washington—Howard University, Bd. of Trustees	525,000
Two dormitories; Robertson & Williams, Archts.	
Fla., Fernandina—Container Corp. of America, Chicago, Ill.	5,000,000
Pulp and kraft paper mill; George F. Hardy, Engr., New York City	
Fla., Miami—Pittsburgh Plate Glass Co.	125,000
Warehouse and office building	
Fla., Miami Beach—Mrs. John O. Horning, Pittsburgh, Pa., and Miami Beach	100,000
Dwelling and garage; Martin L. Hampton, Archt.	
Fla., Miami Beach—Albert Warner, New York City	200,000
Office and store building, etc.	
Fla., Miami Beach—Helen-Max Corp., H. M. Roth, Pres.	100,000
Seven-story apartment hotel; Robert E. Collins, Archt.	
Fla., Palm City—Treasury Dept.	155,000
Post office	
Fla., Port St. Joe—St. Joe Paper Co., George H. Mead, Chmn. of Bd.	7,500,000
Erect paper mill to make kraft and liner board	
Fla., West Palm Beach—Treasury Dept.	275,000
Post office	
Ga., Cordele—Crisp County Board of Education	200,000
New schools, W. L. Dunwoody, Jr., Archt., Macon	
Ky., Vine Grove—Mission Springs Distilling Co., Louisville	150,000
Distillery	
La., Rodessa—United Gas System, Houston	1,200,000
Expand Myrtis gasoline plant and gas booster station	
Md., Baltimore—Public Improvement Commission	5,300,000
Loch Raven—Montebello water tunnel	
Md., Salisbury—Wicomico County, Board of Education	450,000
School building program	
Mo., Hannibal—International Shoe Co.	275,000
Addition to plant	
Mo., Kirkwood—Treasury Dept.	1,000,000
Marine Hospital	
Mo., Sheldon—Texas-Empire Pipe Line Co., Houston	4,500,000
Expand pipe line facilities from this point through Missouri, El Dorado and to Valley Center, Kans.	
Mo., St. Louis—Board of Public Service	1,500,000
Psychopathic hospital	
Mo., St. Louis—Board of Public Service	175,000
Negro community center; Albert Osburg, Chief Archt.	
Mo., St. Louis—St. Louis Southwestern Railway Co.	1,933,000
New rails for 25-miles of track, 5 locomotives, 5 air-conditioned coaches, 50 steel automobile cars, rebuilding box cars and maintenance	
N. C., Lexington—United Furniture Co.	500,000
May rebuild burned plant	
N. C., New Bern—Lord Craven Hotel Corp., Raymond Fuson, Pres.	600,000
Nine-story, 155 room hotel, seawall, promenade, etc.	
N. C., Raleigh—Treasury Dept.	350,000
Federal building addition	
N. C., Wilmington—North Carolina Theaters, Inc., Charlotte	150,000
Theater improvements	
N. C., Winston-Salem—Mrs. Mary Babcock	1,700,000
Improvements and additions to Reynolds estate, swimming pool, etc.	
Okl., Oklahoma City—City, T. G. Banks, Water Engr.	175,000
Enlarge filtration plant, build trunk mains, water towers, etc.	
Okl., Tulsa—City, Board of Education	235,000
School construction program; Arthur Atkinson, Leon Senter and J. R. Koberling, Archts.	
S. C., Florence—Treasury Dept.	6,000,000
Remodeling post office and court house	
Tenn., Bristol—Sullivan County	200,000
New schools	
Tenn., Columbia—Monsanto Chemical Co., St. Louis, Mo.	300,000
General plant expansion program, including phosphate mines here	
Tenn., Memphis—Standard Oil Co.	100,000
Wholesale plant	
Tex., Amarillo—Illinois Zinc Co., Chicago, Ill.	100,000
Smelting plant	
Tex., Beaumont—N. F. Yount Estate	400,000
Mausoleum	
Tex., Conroy—Conroy Independent School District	125,000
Elementary school; L. Q. Cato, Archt., Houston	
Tex., Dallas—Union Terminal Co.	
Terminal improvements	
Tex., Houston—Interstate Circuit	
New building	

Tex., Houston—Southwestern Bell Telephone Co.	500,000
Buildings and general expansion	
Va., Alexandria—Migalit Enterprise, Inc.	250,000
Grand stand, greyhound track, etc.	
Va., Charlottesville—Virginia Public Service Co.	1,375,000
System improvement, including additional facilities at steam electric generating station at Alexandria	
Va., Clarendon—Arlington County, Bd. of Education	250,000
Junior High School; Raymond V. Long, Archt., State Dept. of Education, Richmond	
Va., Falls Church—Town Council, L. P. Daniel, Mayor	120,000
Sewer system	
Va., Hager—Oakwood Smokeless Coal Corp., Bluefield, W. Va.	250,000
Tracks, tipples, houses, mine equipment, etc.	
Va., Mountain Lake—W. L. Moody, Jr., Galveston, Tex.	150,000
Sixty-room hotel	
Va., Petersburg—Central State Hospital	225,000
New building; Browne & Fitzgibbon, Norfolk, Archts.	

Contracts Awarded

Ala., Birmingham—George T. Wofford	
Apartment	\$100,000
D. C., Washington—Gelman Construction Co.	100,000
Apartment building	
D. C., Washington—Southern Railway System	130,000
Rails: Tennessee Coal, Iron & Railroad Co., Birmingham	
D. C., Washington—District Commissioners	348,000
Anacostia high school addition; Harwood-Nebel Construction Co., Contrs.	
D. C., Washington—District Commissioners	195,000
Blue Plains sewage plant; piping, ducts, grading and paving	
D. C., Washington—Thomas H. Pickford	150,000
Apartment-hotel; H. P. Giddings, Contr.	
D. C., Washington—A. H. Eckles and K. H. King	100,000
Office building; Skinker & Garrett, Contr.	
Fla., Miami Beach—Marshall W. Alworth	203,000
Dwelling, garage and servants' quarters; Watt & Sinclair, Contrs.	
Fla., Miami Beach—Sunset Island Co., Atlanta and Miami	250,000
Dwellings, garages, etc.; J. Y. Gooch & Co., Contr.	
Fla., Fort Lauderdale—Coast Guard Development Co.	100,000
Hotel; George W. Young, Contr.	
Ga., Albany—Cudahy Packing Co., Chicago, Ill.	100,000
Plant to handle 8,000 hogs, 1,000 head of cattle and 500 calves weekly; Fiske-Carter Construction Co., Spartanburg, S. C., Contr.	
Ga., Rossville—Peerless Woolen Mills	500,000
Plant extensions; Batson-Cook Co., West Point, Ga., Contr.	
Md., Bethesda—Montgomery County, Bd. of Education	400,000
Western High School improvements; Morrison Bros., Contr.	
Mo., Kansas City—Kansas City Southern Railway	225,000
Rails: Carnegie-Illinois Steel Corp. and Inland Steel Co.	
Md., Salisbury—Treasury Dept.	115,000
Post office; Seymour Ruff & Sons, Inc., Balt., Contr.	
Mo., St. Louis—Missouri Pacific Railway Co.	113,000
Cars; Mt. Vernon Car Co., Mt. Vernon, Ill., and American Car & Foundry Co.	
Okl., Enid—Long-Bell Lumber Co.	5,000,000
Rebuilding burned plant; D. C. Bass Construction Co., Contr.	
S. C., Columbia—F. E. R. A.	100,000
Rural power lines in 11 counties; W. E. Callahan Construction Co., Dallas, Tex., Contrs.	
S. C., Greenville—Treasury Dept.	420,000
Post office; James I. Barnes, Springfield, Mo., Contr.	
Tex., Houston—City	152,000
Two-mile sanitary sewer main; Russ Mitchell, Contr.	
Tex., Houston—Taubman Supply Co., Tulsa, Okla.	100,000
New plant; Wm. A. Brunet, Contr.	
Va., Norfolk—U. S. Engineers, War Dept.	105,000
Dredging; Arundel Corp., Baltimore	
Va., Richmond—Medical College of Va.	268,000
Out patient clinic building; Wise Contracting Co., Inc., Contr.	
Va., Richmond—Chesapeake & Ohio Railway Co.	14,000,000
Equipment, etc.; American Car & Foundry Co., Huntington, W. Va.; Pullman-Standard Manufacturing Co., Butler, Pa.; General American Box Car Corp., East Chicago, Ind.; Pullman Standard Manufacturing Co., Richmond, Va.; Ralston Car Co., Columbus, Ohio; Bethlehem Steel Works, Johnstown, Pa., and Pullman Co., Michigan City, Ind.	
Va., Roanoke—Norfolk & Western Railway Co.	2,000,000
Cars: Virginia Bridge Co., Roanoke, Va., and Pressed Steel Car Co., McKees Rock, Pa.	
W. Va., Clarksburg—St. Mary's Hospital	345,000
Addition; Southeastern Construction Co., Charlotte, Gen. Contr.	

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A New "Oregon Trail"

Coos Bay Bridge, North Bend, Oregon.
Total length of main steelwork, 1708 feet.
Length of anchor arm spans, 457½ feet.
Length of center span, 793 feet.
Clearance under suspended span, 152 feet.
Conde Bascom McCullough, Engineer.

The two anchor arm spans were erected first
followed by the suspended span in the middle.



There is a wide span from the Oregon Trail and Covered Wagon of the early pioneers to the new Oregon Coastal Highway which invites and intrigues the Motorist of today. But it is the same spirit to push forward and to build.

The Coos Bay Bridge is the longest and most important link in this new highway. The main steelwork for the 1708-foot span was fabricated and shipped from our Memphis plant.

We build big bridges and big buildings but you can be sure of no less careful attention and handling of your smallest requirement in steel construction.

VIRGINIA BRIDGE COMPANY

Roanoke Birmingham Memphis Atlanta
New York Charlotte Austin El Paso
Plants at Roanoke, Birmingham, Memphis.

VIRGINIA BRIDGE

STEEL STRUCTURES

JUNE NINETEEN THIRTY-SIX

IRON, STEEL AND METAL MARKET

A SLIGHT rise in ingot production to more than 68 per cent of capacity at the close of May and the first week in June, contrary to the customary seasonal trend, is attributed to the advances in prices of \$2 a ton reported in many lines for the third quarter.

Good business is anticipated this month and the summer lull in demand, it is believed, will not be below the drop experienced in normal years.

Total new business closed during the first four months of this year for steel construction averaged 49.5% of normal as compared with 38.1% of normal for the same period of 1935, reports the American Institute of Steel Construction.

Outlook Best in 5 Years

The steel outlook was described as the best in five years by executives attending the annual meeting of the American Iron and Steel Institute. The more diversified demand for steel products and the increase in activity of the heavy goods industries and construction are considered encouraging factors. Continued production gains and stability of prices are indicated.

Leaders in the industry, however, point to government regulation, reckless spending, and mounting taxes as deterrents to business revival. Eugene G. Grace, president of the Bethlehem Steel Corporation, who was re-elected president of the Institute, says that despite general business improvement, "progress toward sound and permanent recovery has been seriously delayed by continued government experimentation and failure to recognize the proper function, needs and accomplishments of business and industry." Other leaders in the steel industry voice similar views regarding expanded government activities that retard broad gains in business.

William A. Irvin, president of the United States Steel Corporation, and George M. Verity, chairman of the American Rolling Mill Company, call attention to the pent-up demand and need for repairs and replacements which have begun to be manifest in increasing volume as reflected in the increased orders of recent months.

Improved Conditions in South

Conditions in the South and Southwest are improved and will be helped

further by recent Supreme Court decisions, says L. E. Geohegan, vice-president of the Gulf States Steel Company. Farmers are spending money on improvements and feel optimistic. The number of unemployed is being reduced with return of tenants to farms and the starting of grade elimination and other construction projects in several Southern states.

Operating capacity of the steel industry in the Birmingham district is about 69 per cent. Employment for the next three months in the Southern territory is expected to remain steady. Contractors on the \$5,000,000 industrial water project in the Birmingham area have been pushing the work and delivery is to begin on the welded steel pipe requiring approximately 14,000 tons being fabricated by Ingalls Iron Works Co. and Chicago Bridge & Iron Co. The Ingalls Company is also pushing work at the new Decatur plant on four seows, requiring 200 tons of steel each. Other jobs are going through the company's plants at Birmingham and Mobile.

Steel for bridges and other work in Texas, Arkansas and Louisiana is being fabricated at the Virginia Bridge Company's plant. As a whole the South's iron and steel industry has shown stability in recent weeks and there is a good backlog of business.

New Business

A variety of steel products was included in the volume of sales reported last month. Structural shapes, pipe, sheet and tin plate and new business in steel for farm equipment, building and railroad car construction were prominent.

An order for 1500 box cars to the Mount Vernon Car Co. and 500 coal cars to the American Car & Foundry Co., has been placed by the Missouri Pacific Railroad Company. More than 9,750 freight cars were ordered during the month, including 5,400 for the Chesapeake & Ohio Railroad, 1,000 for the Norfolk & Western and 2,800 for the Southern Pacific. The Norfolk & Western is air-conditioning more cars and adding to its equipment.

The Newport News Shipbuilding & Dry Dock Company is the low bidder, at \$2,613,000 for single screw and twin screw at \$2,705,000, for the construction of two freighters for the Matson

Navigation Co. of San Francisco, Cal.

The Texas-Empire Pipe Line Co., New York City, awarded contract for 41,000 tons of steel pipe to the Republic Steel Corporation and A. O. Smith Manufacturing Corp.

Indications are that the oil industry will spend \$1,000,000,000 this year for materials, including large tonnages of steel.

Mill Expansions

With the continued improvement in steel production methods and products, many steel interests are planning to further modernize or build new facilities. Reports that the United States Steel Corp., which has been making many improvements in recent months, is expecting to retire from service and dismantle several more of its obsolete and high cost plants to save taxes and overhead costs and make way for further developments, is an indication of the modernization trend under way in the whole steel industry.

The Bethlehem Steel Co. is completing an improvement program that involves among other work the \$5,000,000 cold-rolled strip mill at Sparrows Point, Md.

The Youngstown Sheet & Tube Co. placed a \$1,300,000 order for a 42-inch cold reduction mill and other equipment with the United Engineering & Foundry Co. for expansion of a tin plate mill in Indiana Harbor, Ind.

Operation at the Rockdale iron furnace of the Tennessee Products Corp., Nashville, will be resumed when renovation is completed. The furnace has been idle for two years or more.

Steel Imports Rise

Recent lowering of tariff rates on cast iron pipe from France, which automatically goes into effect with other countries that have signed reciprocal tariff agreements with the State Department, is significant in view of the rise in iron and steel imports in recent months.

A sharp advance in imports was recorded in March, the Department of Commerce reports. Receipts of semi-finished products totaled 49,728 tons compared with 35,796 tons in February and 19,118 tons in March, 1935. Pig iron maintained its position as the leading individual item in the semi-finished and finished group, amounting to 23,743 tons. Structural shapes were 4,447 tons, bars 3,844 tons, and nails, tacks and staples 2,604 tons. Aggregate imports of semi-finished and finished iron and steel products into the United States in the first three months of 1936 amounted to 128,299 tons compared with 65,513 tons in the corresponding quarter of last year.

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THE SOUTH'S OWN STEEL COMPANY



GULF STATES STEEL COMPANY . . . the largest independent steel company in the South . . . is located at Gadsden, Alabama, in the heart of the iron ore and coal producing section of the South and serving the South.

From its beginning it has had one objective: To serve its customers with those steel products in greatest demand in the South. As the South is primarily an agricultural section, the principal products have been those for use on the farm, including woven-wire fencing, nails, barb wire, sheet-metal, roofing, bars and plates.

Its reputation has been built up with products of unexcelled quality and the quick delivery and prompt service made possible by its location in the heart of the South. Its sustained growth in development of plant and in volume of sales is evidence of satisfied customers.

Manned by Southern men, giving employment to more than 4,000 workmen of both races, recruited from Southern families, the Southern tradition permeates the entire organization.

GULF STATES STEEL COMPANY
BIRMINGHAM, ALABAMA GADSDEN, ALABAMA

LUMBER NEWS

OF THE MONTH

Widening Market For Forest Products

WOOD that won't burn is another triumph for scientific research. This development has opened up a wider market for lumber for all building and finishing purposes. Chemists and wood experts have long known that wood and shingles could be chemically treated against fire. It has been merely a question of a proper chemical to use and the proper treatment to assure adequate protection.

Recently chemically treated wood was put to extreme fire tests at the plant of the Protexol Corp., Kenilworth, N. J., when a spectacular demonstration was staged before the American Building Officials' Conference.

A small frame building of ordinary frame construction with a wood shingle roof was erected. One outside wall was also shingled, the other three being sheathed only. There was a window in one side wall of the building and a window and a two-inch slab wood door in the front. A 10-inch slot was left along the peak of the roof its entire length and a 6-inch slot was left at the ground line around the whole building circumference. All wood, including sash and door, had been chemically treated, though the slab door had been treated some 30 years previously and had served for 30 years in a now dismantled New York hotel.

Cotton waste was placed inside the building. An inflammable liquid was pumped over the waste and the roof and outside walls of the building were likewise sprayed with oil and ignited.

In an account of the test, released by the Bureau of Foreign and Domestic Commerce, it was noted that as soon as the inflammable liquid had been burned off the roof and sides of the structure, the flames quickly died down. They were not able to get a hold on the wood or the shingles because of the chemical treatment. Also, despite the flames on the outside, it was necessary to open the door and start the interior fire. The treated wood walls and shingles afforded insulation. The fire was permitted to burn for 40 minutes at a temperature exceeding 1800 degrees. By the end of 20 minutes the continued intense heat inside the structure had eaten through the end-wall peaks and the roof. The windows had of course gone out earlier. Not an ember was said to have been thrown and not a piece of wood went down flaming.

The conclusion reached as a result of the test is that wood or any combustible, if properly treated and handled, can be used under most any fire intensity and does not support combustion or add to the fire hazard. The fire immediately died away as soon as the oil had burned itself out.

Based on investigations by the Underwriters' Laboratories, this authority approved chemically treated lumber of red oak and maple for flooring and interior trim.

The successful fireproofing of this lumber is effected by a method not unlike that used in the treatment of telegraph poles, railroad ties, fence posts, etc., with chemicals for protection against decay, except that incombustible salts are used in the case of the fireproofed lumber. The technique of the process is exacting, as its success depends largely upon getting the correct kind and amount of chemicals into the wood.

Protexol Corp., wood preservers since 1877, is the impregnator of the fireproofed lumber investigated. Properties

of this lumber, other than its fire-resistant qualities, were also investigated. Its workability is said to be equal in every way to that of untreated lumber. Its ability to take paint and varnish is not altered, its appearance is unchanged and its weight is only slightly greater than that of untreated material.

The process of treatment, as explained by Ernest F. Hartman, president of Protexol Corporation, is the vacuum pressure method employed in the treatment of railroad ties. Water solutions carrying chemicals are employed, which deposit the chemicals in the wood in an insoluble form. Visually the wood undergoes practically no change—its color and appearance are not altered. Its strength is not affected any more than in other wood preserving treatments.

Mr. Hartman reports his company has been running a lot of timber for shafting in a lead mine. They are treating a lot for catwalks, some having been supplied to alcohol plants. The wide range of application is shown by the fact Protexol material has been tested for wooden-handled kitchen utensils. Fireproof trim for buildings, fireproof ties for railroad bridges and racks for liquor warehouses are indicated uses.

South's Newsprint Resources

AN important symposium of discussions on the outlook for the development of newsprint paper industry in the South has been issued in reprint form by E. L. Demmon, director, Southern Forest Experiment Station, New Orleans. The reprint of articles appearing in the Journal of Forestry contains among other topics the influence of forest practices on the stability of Southern pine for newsprint and Captain Eldredge's informal summary of Forest Survey findings as to pulpwood supplies in parts of the South for which survey data were available.

The deep South, comprising 12 Survey Units, is shown to have 54,000,000 acres of forest of which 76 per cent is in second growth from 10 to 50 years old. Computed into cordwood, there are 441,000,000 cords and of this total 339,000,000 cords are in pulping species—pines and softer of the hardwoods.

Of the 339,000,000 cords of possible pulpwood supply, 13 per cent is composed of trees 20 inches in diameter and up, which should yield highgrade saw timber, while approximately 60 per cent afford pulping species in trees between 4 and 6 inches, below which nothing is included in the survey.

Experiments In Making Plastics From Sawdust

Forest Products Laboratory Reports
Encouraging Progress In Utilizing Mill and Woodworking Plant Wastes

EXPERIMENTS in making plastics from sawdust have been highly encouraging, and lead the Forest Service of the United States Department of Agriculture "to feel confident that eventually a product will be evolved that will compete successfully with the plastics now on the market."

At present the Forest Products Laboratory is working on one or two characteristics that need to be brought under better control before it can announce a process that is ready for commercial development.

Thus may be solved the problem of waste at sawmills and woodworking plants, through the use of comparatively simple processes for converting sawdust into a molding powder of plastic properties.

Three processes give promise of producing materials which, while possibly varying in character, water resistance and cost of production, are all rather dense, dark colored and take a brilliant finish. Some of the more recent plastics have a modulus of rupture in excess of 6,000.

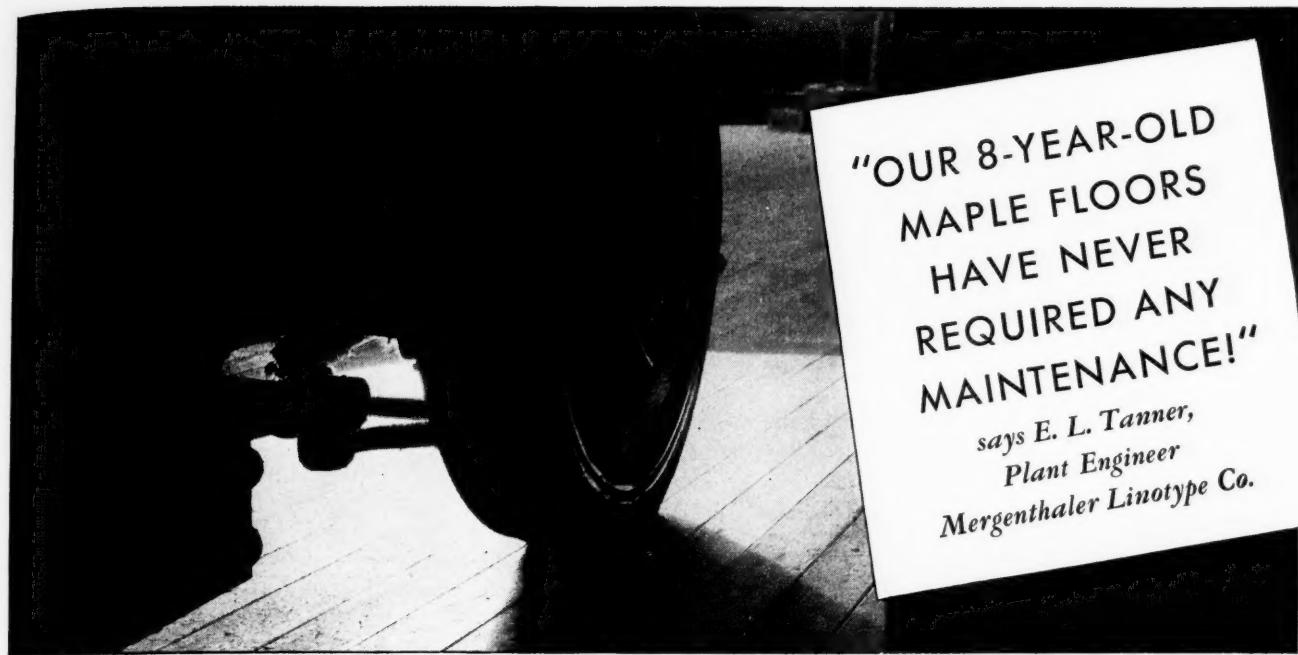
So far as is known, no manufacturer is attempting anything along this line. The processes used by the Forest Products Laboratory are briefly sketched:

1. Sawdust is hydrolyzed with dilute acid under pressure in precisely the same manner that wood is hydrolyzed for the production of ethyl alcohol from wood on a commercial basis. The solid material is freed from the extraneous liquor and is dried. The dried powder is mixed with 10% furfural and air-dried. This relatively dry powder is pressed at 135° C. and 300 pounds per square inch. A somewhat better board is obtained by the addition of 3½% of aniline to the mixture.

2. The sawdust is subjected to the action of dilute phenol at elevated temperatures of 175° C. for a period of ½-hour. The resulting powder is then thoroughly washed with water to remove excess phenol and sugars and in order to permit the recovery of the excess phenol. It is then dried and pressed dry.

3. The sawdust is digested at somewhat higher elevated temperature with water alone. The resulting sawdust is then washed free from sugars, dried and mixed with aniline—about 5%—and pressed at 135° C. and 3000 pounds pressure per square inch. Several other chemicals seem to give equally satisfactory results, but insufficient work has been done to warrant any conclusions at this time.

It has been found that a small amount of chlorine greatly accelerates the reaction with furfural and phenol, but because of its tendency to etch the molds, it has not proved to be satisfactory.



**"OUR 8-YEAR-OLD
MAPLE FLOORS
HAVE NEVER
REQUIRED ANY
MAINTENANCE!"**

*says E. L. Tanner,
Plant Engineer
Mergenthaler Linotype Co.*

MERGENTHALER FINDS HARD MAPLE STANDS UP UNDER THE GRIND OF STEEL-WHEELED TRUCKS AND TRACTORS

COVERING the equivalent of two city blocks, housing 2500 employees, the Mergenthaler plant is nevertheless distinguished by its cleanliness and efficiency. 90 men are employed in maintenance work.

Needless to say, Mergenthaler knows maintenance costs. Therefore, what E. L. Tanner, Plant Engineer, says about Mergenthaler's floors is especially interesting:

"The Maple flooring in some buildings has been installed for eight years; in others, for fifteen years. The eight-year-old flooring is in excellent condition and has never required any maintenance; the fifteen-year-old flooring has required very little."

"Our plant uses heavy machines," continues Mr. Tanner, "and trucks and tractors with steel wheels are constantly carrying heavy loads back and forth through the building. Yet, none of the floors have shown appreciable wear."

"Because of the excellent service this company has had from present flooring, we shall certainly specify Maple in any new buildings."

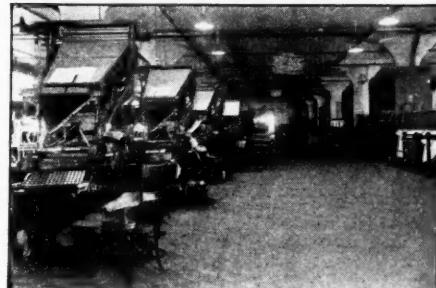
Wherever maintenance costs are carefully checked, Northern Hard Maple proves to be the flooring of unequalled economy. Tough-fibred, tight-grained, it is lastingly smooth, offers remarkable resistance to abrasion, does not sliver, splinter, or develop ridges. Creates no dust—provides no lodging places for dirt. Treated with the new penetrating heavy-duty finishes, it minimizes maintenance and cleaning costs—brushing alone keeps it clean. Hard Maple simplifies plant alterations; its resilience and warmth reduces fatigue and aids workers' efficiency.

You can floor with Maple in blocks or strips, with or without pattern, over wood or concrete sub-floors or over your present floor. Before modernizing or building anew, be sure to investigate its many advantages.

Our "Grading Rules" book describes the various grades and gives standard specifications for laying and finishing. Write for free copy.

MAPLE FLOORING MANUFACTURERS ASSOCIATION
1797 McCormick Building, Chicago, Ill.

See our catalog data in Sweet's, Sec. 15/53. Let our service and research department assist you with your flooring problems. Write us.



Every employee in this modern plant is asked to "help keep the standards that good tools, upkeep, cleanliness and care will produce." Remarkably clean plant conditions are maintained. The Hard Maple Flooring contributes substantially to this effort.



Power trucks drag heavy loads through the Mergenthaler buildings. But their steel wheels do not cut into tough-fibred, tight-grained Hard Maple floors.

Floor with Maple

The letters **MFMA** on Maple, Beech or Birch Flooring signify that the flooring is standardized and guaranteed by the Maple Flooring Manufacturers Association, whose members must attain and maintain the highest standards of manufacture and adhere to manufacturing and grading rules which economically conserve these remarkable woods. This trade-mark is for your protection. Look for it on the flooring you use.

MFMA



GOOD ROADS AND MOTOR TRANSPORT

565 Miles Cotton Surfaced Highways

Work To Be Undertaken To Demonstrate Practicability of New Technique In Road Construction Requires 5,961,562 Square Yards Cotton Fabric and 2,275,000 Linear Yards Cotton Mats

RECENT developments in the use of cotton fabric in surfacing highways emphasize the importance of this new outlet for cotton. The Department of Agriculture opened bids on May 28 for 1,500,000 yards of cotton fabric road reinforcing membrane, adding to the 1,412,000 yards of material awarded on May 18.

As a result of the Department's allocation of \$1,300,000, urged by the Cotton-Textile Institute, Inc., to stimulate the use of cotton as a road building material, 19 states will construct 565 miles of cotton reinforced bituminous surfaced highways this summer and 22 states will use 75,835 cotton mats in the curing of concrete pavements.

Requisitions from the 19 states for reinforced membrane, to be furnished gratis by the government for a large scale demonstration of the practicability of the new technique, call for 5,961,562 square yards of cotton fabric while the 75,835 cotton curing mats, each 5 x 22 feet, will absorb, in addition to cotton filling, 2,275,050 linear yards of 40-inch osnaburg.

Nine states in the South will construct 375 miles of cotton reinforced roads requiring 3,966,430 square yards of fabric and 1,054,000 yards of cloth for mats.

The Cannon Mills Co., Kannapolis, N. C., on May 18 was awarded the contract for 362,820 yards of 90-inch material, while J. P. Stevens & Co., New York City, was awarded contract for

Stabilizing Soil Roads With Lignin Binder

By-Product of Wood Pulp Industry Used to Provide Low-Cost Surfaces and to Reduce Skidding, Dust and Maintenance Cost

MORE than 40 highway units—state, city, county or district—are using or investigating the possibilities of lignin, a forest by-product, as a road binder.

Applied in the form of a solution to the surface of an earth or soil low-type road, much in the manner that chemical or bituminous binders are employed, the forest by-product serves to stabilize the surface material, and to reduce dust produced by traffic when such roads are dry.

Lignin binder has been used in New Jersey for over 20 years for the treatment of gravel surfaces on highways.

It serves to bind-up and stabilize

1,049,580 yards of the 82-inch and 74-inch material, at an aggregate cost to the government of \$182,894.

The construction, quantity and prices of the fabric were:

Weave	Width inches	Linear Yards	Yard Cost Cents
12 x 12	90	120,060	.1974
9 x 9	90	122,700	.1560
7 x 7	90	120,060	.1189
12 x 12	82	200,000	.1561
9 x 9	82	200,000	.1247
7 x 7	82	200,000	.0944
12 x 12	74	150,740	.1405
9 x 9	74	150,740	.1117
7 x 7	74	148,100	.0859

Applications from states and the amounts of reinforcing fabric and mats requisitioned, reported by the Department of Agriculture, are listed below.

State	No. of Mats	Cotton Mats for Curing Concrete Pavements		Fabric for Reinforcing Bituminous Surfaced Roads	
		Linear Yds. of Fabric	Square Yds. of Fabric	Miles of 18' Roads	
North Carolina	2,755	82,650	1,115,253.33	105.61	
South Carolina	1,200	36,000	669,973.33	63.44	
Michigan	2,400	72,000	417,975.00	42.42	
Missouri	4,200	126,000	257,400.00	24.37	
Arizona	920	27,600	171,951.50	16.28	
Arkansas	1,500	45,000	123,000.00	11.65	
Rhode Island	6,000	180,000	125,100.00	11.84	
Indiana	1,500	45,000	114,060.00	10.80	
Virginia	900	27,000	89,173.32	8.44	
New Hampshire			21,706.65	2.05	
Illinois	1,870	56,100			
Minnesota	4,200	126,000			
New York	12,700	381,000	842,122.21	79.75	
Pennsylvania	4,500	135,000			
Wisconsin	720	21,600			
Oklahoma	1,500	45,000			
Mississippi	2,100	63,000	253,653.33	24.01	
Georgia	1,000	30,000	117,007.77	11.08	
Washington	420	12,600	39,600.00	3.75	
Montana			66,116.66	6.36	
Nevada	1,250	37,500	66,000.00	6.25	
California	2,000	60,000			
New Jersey			102,500.00	9.70	
Tennessee			78,875.00	7.47	
Alabama			1,260,094.00	119.33	
Ohio	2,200	66,000			
Texas	20,000	600,000			
Totals		75,835	2,275,050	5,961,562.10	564.50

sand-clay gravel surfaces so that they are less easily affected by rain and the destructive action of frost in the spring time, Alex W. Muir, superintendent of maintenance, Trenton, N. J., reports.

The material, as applied to the road surface, is diluted with water in the general proportion of one part of concentrated extract to one part of water. For an original treatment a total quantity of six-tenths of a gallon of concentrated extract per square yard is used for the season. This quantity is applied in two treatments by the New Jersey Highway Department, the first of which amounts to approximately four-tenths of a gallon per square yard, and the second to approximately two-tenths of a gallon per square yard.

Each of the treatments is applied in not less than two applications, depending somewhat upon the character and condition of the surface upon which it is being applied. The usual method of application is by means of the modern motor-driven pressure distributor which, in general, is similar to the type of distributor used for the application of bituminous materials.

Lignin binder used by the State Highway Department of New Jersey must conform to the specifications given below:

Lignin binder shall be liquid extracts obtained in the manufacture of wood pulp, conforming to the requirements shown in Table 23.

TABLE 23
LIGNIN BINDER

Item	Per Cent Min. Max
Solubility in hot and cold water	99.5
Evaporation lost, 120° C., to constant weight	55
Ash content	11.5
Free acids	0.5
SO ₂ content as sulphite	1.0
Total sulphur content as SO ₃	3.5
CaO plus MgO content	1.25 6.5
Ferric oxide content	0.25

The specific gravity at 60° F. shall be not less than 1.25. The binder shall be free from animal, vegetable or mineral oils, asphalt and tars and shall be uniform and homogeneous in composition. During concentration, the liquid shall not be heated above 212° F.

Known as Raylig, a lignin road binder, produced by the Rainier Pulp & Paper Co., Seattle, Washington, was shipped on May 11, from Puget Sound, the steamship Kishacoquillas, carrying a cargo of 1,650,000 gallons for Carteret and Paulsboro, New Jersey. This cargo will be used for treating approximately 650-miles of shoulders of paved highways and surfaces of secondary roads and streets.



*"I can't
say enough
IN PRAISING THE
LAST MARION
I BOUGHT"* SAYS

Joseph Breen
THE BREEN CONTRACTING CO.

New York City

"We are thoroughly acquainted with the splendid performance of Marion shovels. We bought our first Marion 12 years ago and have owned several of them. But the last one we bought—a Marion 371 Clutch Type machine—takes the prize. It's doing things we little dreamed a shovel of its size and capacity would do. Its first job was handling 1500 cu. yds. of rock per day on an apartment foundation at 183rd Street and Fort Washington Avenue, New York City—a real test for any shovel."

MARION

CLUTCH TYPE EXCAVATORS
A MACHINE FOR EVERY MATERIAL HANDLING JOB

FROM $\frac{3}{4}$ CUBIC YARD UP

WRITE FOR BULLETIN DESCRIBING MARION FEATURES
THE MARION STEAM SHOVEL COMPANY
MARION, OHIO, U.S.A.

The Marion Type 371—Clutch Type Excavator—equipped with a $1\frac{3}{4}$ cubic yard dipper—and owned by the Breen Contracting Co., New York City. Handling rock on an apartment foundation site.

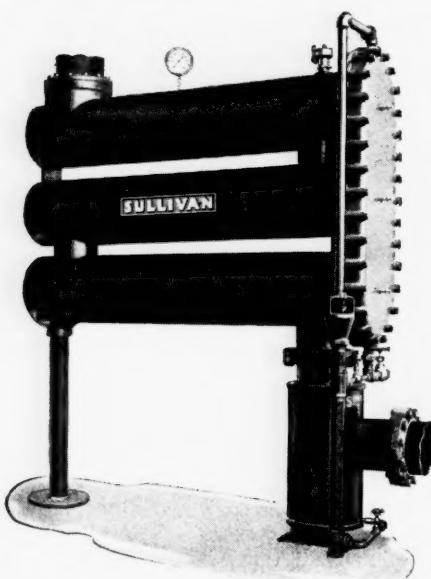


EQUIPMENT

NEW AND IMPROVED

Compressed Air Aftercoolers

Compressed air Aftercoolers are described in a new bulletin (No. 88-W) issued by Sullivan Machinery Co., Michigan City, Ind. Features stressed in these machines are the multipass design, which insures maximum cooling from the water available, the use of a built-in separator which effectively removes from the air, water and oil condensed in the Aftercooler, and provisions for quick, easy cleaning of the cooling tubes.



Compressed Air Aftercooler

Ingersoll-Rand Refrigeration

The use of water as a refrigerating medium—the only refrigerant used in centrifugal water-vapor refrigeration, is not only safe but eliminates all handling and seasonal replacement of refrigerants, while reducing maintenance and providing an unusual overload capacity. Two types of units using water as a refrigerant—steam-jet and centrifugal—offered by Ingersoll-Rand Co., New York City, permit the selection of the most economical equipment to meet widely varying conditions of steam or electric power, cooling water supply and refrigerating requirements. A unit of the Ingersoll-Rand centrifugal type has been used to cool the offices of the American Cyanamid Co., 750 feet above the street in the R. C. A. Building, New York, using chilled water produced by a 180-ton refrigerating unit. This installation is typical of the ability of these units to meet special requirements. The Ingersoll-Rand steam jet refrigerating equipment is offered for use wherever sufficient steam and cooling water are available, and is particularly adapted to applications where refrigerating temperatures are moderate, such as air-conditioning and numerous processes in industrial plants.

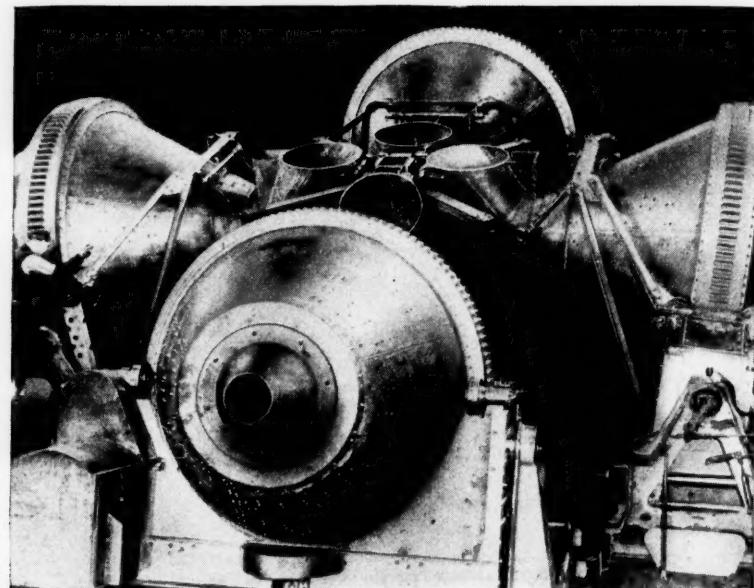
Front End Concrete Mixer

The T. L. Smith Co., Milwaukee, Wis., departing from the conventional design and construction, has introduced a new type concrete mixer whereby two, three or four Smith tilters can discharge into a central hopper by charging and discharging through the same drum opening. It is declared that such a layout provides for a more compact set-up. Only one set of batchers is required to charge all mixers, and a material saving is effected in the overall height of the mixing plant.

Each mixer has an automatically operated feed chute which seals the drum opening and permits the batcher turn head to be moved to the next mixer immediately after the drum is charged. Flow between batcher and mixer is practically in a straight line, therefore

the aggregates enter the drum faster. Displaced air escapes through the other drum opening. Since the feed chute seals the drum opening, the spilling of unmixed aggregates into the concrete hopper is prevented, and it is not necessary to tilt the mixers excessively to insure fast charging.

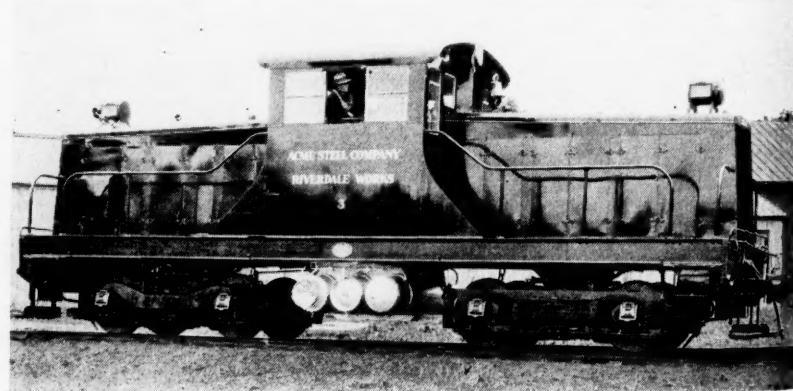
Four Smith 84-S front end charged mixers are now pouring the Tygart Valley dam in West Virginia, which is under construction by the Frederick Snare Corp., New York. This is said to be the first front end charged mixing plant ever installed, having been in operation over a year and declared to be giving excellent service. Three Smith 112-S mixers, used to pour the Boulder dam, were arranged for front end charging by the contractor, the Columbia Construction Co., for service on the Bonneville dam.



Butane and Propane Locomotive

Bringing to industry a new and economical unit—the Butane and Propane Locomotive—the Plymouth Locomotive Works, division of The Fate-Root-Heath Co., Plymouth, Ohio, sets forth outstanding features of the unit: Moderate first

cost; uses low priced industrial fuel; employs slightly modified standard heavy duty gasoline engines of proved reliability; lowest repair and maintenance cost of any internal combustion type locomotive; does in 8 hours the work it took steam 14 hours to do, and effects savings in fuel, repairs, etc.



The world's greatest dam...

the world's greatest roofs

FROM foundation rock to the crest of Boulder Dam measures 727 feet, only 65 feet less than the height of the famous 60-story Woolworth Building... Lake Mead will cover 229 square miles.

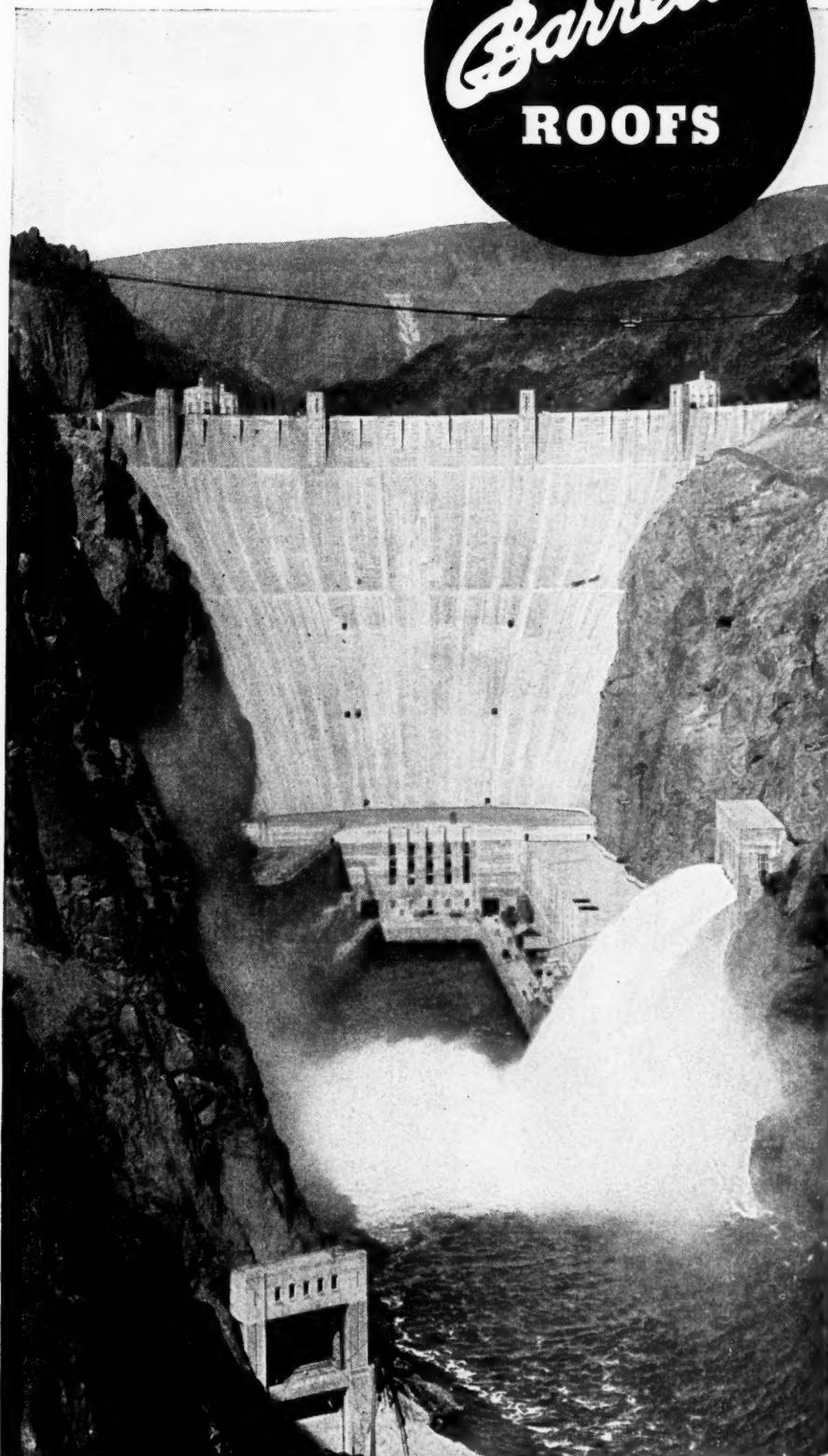
... The power plant is rated at approximately four times the horsepower developed at Niagara Falls.

In this tremendous project, Barrett materials play a conspicuous part. The huge U-shaped power house, the intake towers and the canyon wall outlet works are protected with 180,000 square feet of Barrett Roofs, and the gigantic steel penstocks, 30 feet in diameter, located in 50-foot tunnels, are protected with Barrett Pipe Line Coatings.

Whether your project is a monumental structure or a simple building, the roof is too important to take chances with. Barrett Specification Roofs, bonded for 20 years by the United States Fidelity and Guaranty Company against repair and maintenance expense, are the world's greatest roof value.

They are applied by Barrett Approved Roofers, selected on the basis of their workmanship, ability and integrity. Consult with them or with us on any roofing or waterproofing project.

Boulder Dam, Colorado River, constructed by the Bureau of Reclamation, Department of Interior, Washington, D. C. General Contractors: Six Companies, Inc., Boulder City, Nev. Barrett Approved Roofer: Bacon and Schramm, Denver, Colo.



THE BARRETT COMPANY, 40 RECTOR STREET, NEW YORK, N. Y.

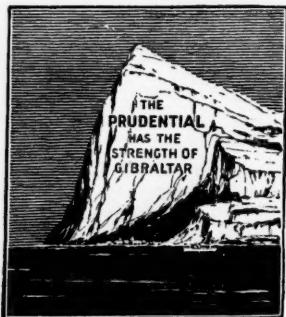
2800 So. Sacramento Avenue, Chicago, Illinois

JUNE NINETEEN THIRTY-SIX

Birmingham, Alabama

A life may be long —or very brief

In either extreme, dollar
needs will arise. You
can cover both these haz-
ards in a single contract



MAY WE SHOW YOU
WHAT WE HAVE DEVISED?

THE PRUDENTIAL
INSURANCE COMPANY OF AMERICA
EDWARD D. DUFFIELD, President
HOME OFFICE, NEWARK, N. J.

FINANCIAL NEWS

Low Interest Rates Continue

INTEREST rates have continued at an abnormally low figure over a long period. It has been prophesied frequently that this would lead to a speculative boom, or possibly, as borrowers increase their loans, to a condition of overproduction, which, as too often happens in business cycles, would eventuate later in another depression.

In spite of these predictions, there is no sign at present of any material increase in rates. A brisk demand from commerce for new loans will naturally increase the cost of money, but the banks have not found many customers who want to make commitments on the debit side.

In the meantime, it is to the advantage of government to see that the money market remains at a level favorable to new government offerings. There is abundant reason for an increase in good commercial paper, but it is comparatively scarce. In ordinary times, new plants that are needed and the rehabilitation of old ones with new equipment would cause the bankers to be busy. But business waits for fuller assurance of what the dollar will be worth in the future and what are the prospects for stable investments.

There is at present small prospect of a balanced national budget. Because of that fact, as well as the continual mounting debt, worthy borrowers are hesitant.

Railroads Increase Earnings

CONSIDERATION of the better earnings of the railroads for the first quarter of this year, in which it is anticipated they will have met their fixed charges for the first time since 1931, gives encouragement to investors and business people generally. The railroads are the country's greatest buyers of all commodities in capital goods lines.

It is important that any public agency, rendering a vital service, shall be able to earn a decent profit from its work. Hamstrung as they have been by almost every conceivable form of regulation, both local and Federal, and with taxes that year after year are absorbing an increasing part of their revenue, it is indeed gratifying that their business has improved. Railroads have begun to modernize their equipment and results are seen in some increase in net returns.

Railroads have not been mindful, always, of the public interest, but it is well to bear in mind that as contrasted to private ownership, Federal control would be unbearable. The interest of the country requires the maintenance of carriers in private hands, and on the part of the carriers the interests of their stockholders require they shall, as far as possible, meet competition with improved facilities in track and equipment and stations and in personnel. The dark, forbidding railroad station and the indifferent clerk to wait on the public, will give way to depots which, because of their attractiveness, will draw people, and employees who recognize that their part is to serve pleasantly and efficiently the railroad's customers.

Reduction in passenger fares and the modern, air-conditioned, streamlined train, which travels noiselessly and dustlessly at high speed over its own right of way, are potent reasons for competitors to take heed. Railroads are now making a very strong appeal to travelers.

(Continued on page 52)

“FARM RELIEF”

Companies associated in the Commonwealth & Southern system have long been known for constructive rural electrification programs.

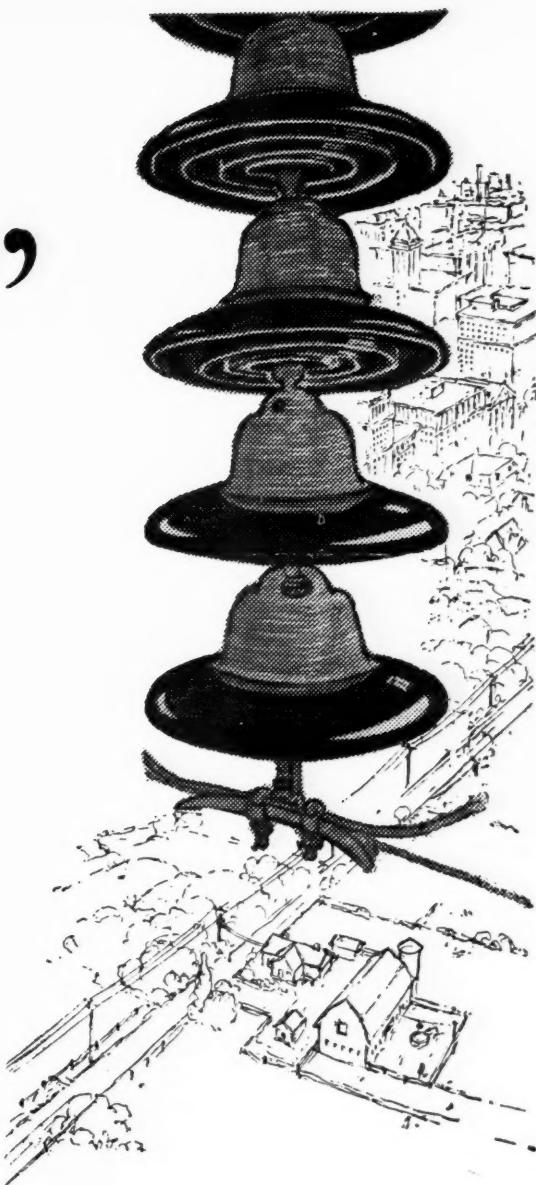
Under the stimulus of company-sponsored co-operative activities, benefits are accruing to farmers, equipment dealers, electrical contractors.

“Farm relief” it truly is—in a tangible, business-like way, free from tax subsidy. More efficient farmstead operations, opportunities for diversification, lightening of household burdens, better home life—all are farm products to be harvested without restriction; “benefits” accruing to the small farmer, owner or tenant, in even greater comparative measure than to the large.

Nothing new is this work—but the cumulative result of policies of long years standing, and accelerated today because of this firm foundation.

Granted the opportunity of doing business under normal conditions, free from unwarranted interference, unsound competitive barriers and destructive legislation—this program can achieve even greater success.

How well it does is a matter of mutual concern to **YOU**, the manufacturer, as well as to the utility industry.



The
COMMONWEALTH & SOUTHERN
CORPORATION

MICHIGAN - OHIO - ILLINOIS - INDIANA - PENNSYLVANIA - GEORGIA - FLORIDA - MISSISSIPPI - SO. CAROLINA - ALABAMA - TENNESSEE

As Business Improves

Properly conducted commercial banking is devoted to cooperation with worthy enterprise.

As we have said previously, the problem of recovery is mainly up to industry and we are glad to offer our facilities in the service of our customers.

Correspondence invited.

BALTIMORE COMMERCIAL BANK
GWYNN CROWTHER, President

Baltimore, Maryland

Member Federal Reserve System
Member Federal Deposit Insurance Corporation

HUTTON & BOURBONNAIS CO.

HICKORY, N. C.

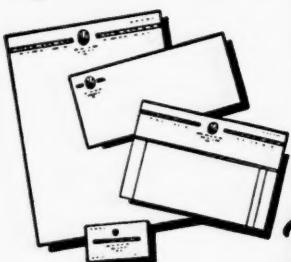
Industrial Crating, Box Shooks, Rough and Dressed Lumber, Oak Flooring, also Pinus Strobus Pattern Lumber, White Pine, N. C. Pine, Oak, Poplar and Chestnut.

INQUIRIES SOLICITED.

Your Stationery Matches

**DOES YOUR
PACKAGING?**

Consider



*Co-ordinated
Packaging*

A business man accepts it as a matter of fact that his stationery and forms are of the same color combinations and style. But he may lose sight of that fundamental in selling when it comes to his packaging, and let it become a hodgepodge of color and designs.

If your product is packed attractively and the same scheme is carried out on the label or seal, box wrapper, etc. you can accomplish a distinctive style, and definitely increase sales. "CO-ORDINATED PACKAGING" will not only do this but also effect economy in production costs.

Allow us to submit designs, without obligation, for your packaging.

OLD DOMINION BOX CO. Inc.

LYNCHBURG, VA.

Winston-Salem, N. C.
Pulaski, Va.

Burlington, N. C.
Charlotte, N. C.

Asheboro, N. C.

Old Dominion Paper Boxes

Financial News

(Continued from page 50)

A Layman's Viewpoint

BUSINESS men as a rule, unless they are directly connected with banking operations, regard the workings of a financial institution from the outside of the counter. Prosperity of the banks, however, has a direct bearing on business progress and reflects the prosperity of the business world or the reverse.

Too often the banker is regarded as a fishy-eyed individual who, as the guardian of other people's money, refuses to take more than an indifferent view of other people's problems and the ways in which they can be solved. This is probably true of some bankers who have earned the reputation of having at least one glass eye about which the opinion has been expressed that although artificial, it has a kindlier gleam than the natural eye.

During the last three years, bankers have had a difficult time. Their business depends, as every other business does, upon public demand to keep it going profitably. There have been many councils held, in many places, to decide what can be done to increase business at a time when borrowers, who are entitled to credit, refuse to use it.

Sometimes it seems to the sympathetic observer, and with all due regard to the sacredness of their trust, the dignity of their position and the view that it is unethical to advertise the facts that they have money to lend, it would lighten their burden and pave the way for increased business if bankers adopted the viewpoint that business can be created by forceful, convincing publicity.

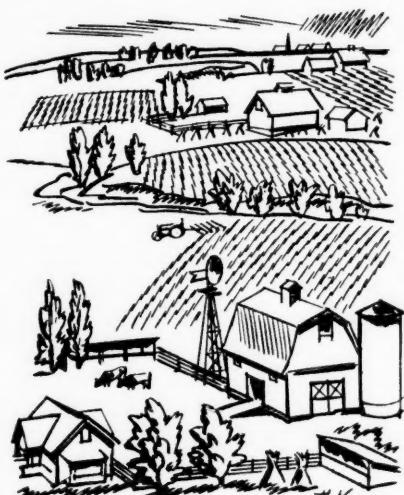
What is being said applies mainly to commercial banks, which of course are the mainstay of the business structure. Others in the financial field find it advisable to offer their wares in a dignified, convincing manner, and to explain the value of the service they can render. Why not the commercial banker? The old-style advertising of safety, security and service has run its course. There are many angles to a banker's work which can be put before the public in a revealing way that would tend now, although people may be unwilling to borrow, to build up good will for the future. It is worth thinking about.

As a matter of fact, this whole subject of publicity, which is not usually discussed in this column, has a very definite and direct bearing upon the needs of all business at the present time.

Through lack of confidence, with initiative palsied, it seems to the writer business has missed an opportunity throughout the depression to use a part of its accumulation of surplus to inspire the country and keep before business readers, less able to do it, the salient fact that despite the turmoil through which we have been passing, it is virtually undeniable that private business will survive. Private business has surmounted difficulties that have swamped governments in other lands. This is because the needs of humanity are insatiable. The producer must go on with his work, and in the days of darkness and despair some, more adventurous and bolder than others, have gone ahead unceasingly and have abundantly proved the wisdom of their course.

The defeatist attitude is fundamentally wrong, and few of us rise above it when it touches our pocketbooks. There was a man in Baltimore who grew rich many years ago because he never made investments except at times of panic when everybody else wanted to get rid of them. A gambler! Perhaps. But it is just as well to describe him as a man with confident vision who believed always in America and the unequalled resources nature has given it.

MUNICIPAL PLANTS NEGLECT FARMERS



FARMERS and other rural residents need not even hope for any benefits when their nearest city decides to build its own electric plant.

The New York Legislative Committee Investigating Public Utilities says it is the tendency of municipal plants both within and without the State to favor users who live within the limits of the city or village where the plant is located:

"Its policy too often is to look after its own municipality and no one else."

Yet farmers deserve low-cost power as well as those who live and vote within city limits. Operating companies of the Associated System supply electricity to 59,088 farmers. Associated Companies in New York State alone are building 1,000 miles of rural line this year to carry service to at least 4,000 new rural and farm customers.

ASSOCIATED GAS & ELECTRIC SYSTEM



ON OUR SYSTEM

PIMENTOS, AND PORTLAND CEMENT

CAKES, AND TIN CANS

COFFEE, AND FELT HATS

CRACKERS, AND METAL BEDS

ICE CREAM CONES, AND TYPEMETAL

MATTRESSES, AND PLOWS

Various degrees of heat; different automatic applications

BUT, THE ONE FUEL—NATURAL GAS

Let us solve your heat process problems

CONSULT YOUR LOCAL GAS COMPANY

or write us

SOUTHERN NATURAL GAS COMPANY

Watts Building

Birmingham, Ala.

A DAY WITH THE ARMCO DISTRIBUTOR

A CUSTOMER WANTS STEEL
NOW

TAKING THE ORDER

THE STOCK IS HERE

THE DELIVERY

IT'S WORKING FINE

ANOTHER ORDER

YOU GET MORE
THAN "JUST METAL"
FROM THE
ARMCO DISTRIBUTOR

• When you need flat-rolled iron and steel in a hurry, and insist upon more than average quality and service, it's a good idea to get the Armco Distributor on the telephone.

Whether it's a commodity grade or a special grade, he'll see to it that your order goes through in double-quick time ... and what's more the quality will be just what you want.

The American Rolling Mill Co.,
Executive Offices, Middletown, O.



ARMCO
SHEETS • STRIP • PLATE • COILS

AND SO IT GOES

The Truck Goes Round and Round

on a scientific merry-go-round used in testing road-building materials and pavement designs in the laboratories of the British Road Research Department. A powerful whirling machine spins a loaded truck in a circle at the end of a 50-foot arm. The truck runs on a circular track, surfaced with materials being tested, at speeds of up to 40 miles an hour.

• • •

Not A Bite In A Carload

is what the U. S. Department of Agriculture says of the cicada—the 17-year locust to you, which recently made its appearance in the United States. For, not being the true locust, it has no chewing mechanism and is therefore not destructive to crops.

Locusts, which cause crop damage running into the millions annually in other countries, have been turned to profitable use in Argentina, where some 4500 tons of the pests were gathered by ranchers, dried and then ground for use as fertilizer. Thus, instead of eating the crops, the locusts are actually stimulating production of farm products.

• • •

"Grow Your Own Vegetables" In A Water Basin

hasn't been adopted as a slogan yet, but great advances have been made in "nutrient plant solution agriculture" which in every day language means growing crops out of shallow tanks of liquid nourishment without soil, the chemically-treated water being heated by electricity.

The water-filled vats are covered with chicken-wire mesh, and excelsior, sawdust, or suitable litter spread on the wire serves as seedbed and insulation against heat loss. Plants or seeds are placed in the bedding, moistened by water in the basins. As the plants grow, the roots enter the water. Concentrated plant foods are supplied through the water, the plants growing under natural light and temperature changes in green houses.

• • •

A Big Squeeze

and you can make a bucket of lemonade from one lemon without cheating the customers—that is, if you buy the unusual citrus product of the variety known as "Ponderosa." Although, it is nearly as large as a football, it is a genuine lemon in all of its other characteristics.

• • •

Mechanical Eyes That Search For Oil 10,000 Feet Down

were displayed at the International Petroleum Exposition in Tulsa. The underground candid cameras promise to open a new field in exploration. Able to go thousands of feet vertically down into the ground, they turn as desired to guide drills in lateral explorations. The ingenious devices photograph drilling accidents at the bottom of holes, enable geologists to distinguish the various strata of earth, and when a drill sticks or breaks help to map out a detour.

• • •

How Far A Billion Dollars Goes

could easily be concretely ascertained if some of our Congressmen "took a walk." For, if one billion dollars in one-dollar bills were laid end to end, it would take a Congressman, maintaining a gait of four miles an hour for forty hours a week and fifty weeks a year, eleven years and ten months to walk past all of them. One billion dollars in one-dollar bills laid end to end would stretch for 94,696 miles.

Turn On The Cold And Hop Into Bed

is the advice the Cotton-Textile Institute gives to those whose slumbers are disturbed by hot weather. The Institute suggests plugging into an ordinary light socket a simple refrigerating unit, which encloses the bed in a cotton curtain to a height to about three feet above the mattress. In an air-conditioned bed, the sleeper "enjoys good climate and refreshing, cool air with no fear of drafts. Actually, the temperature in the room may be 100°, while that in the bed, may be 65°."

• • •

Instead Of Walking The Plank, It's Walking The Belt

for shoes are now tested in the laboratory in a device, which reproduces actual service conditions, developed by the Bureau of Standards, at the suggestion of the General Federation of Women's Clubs. Moving pictures of people walking, were studied in order to develop proper foot action. Four pairs of shoes are tested simultaneously in a machine consisting of eight radial cylinders having pistons ground to fit smoothly. The cylinders and pistons form the spokes of a rimless wheel, the shoes being fastened to the movable pistons. An endless belt is driven across a bed of rollers and the shoes, fitted to the pistons, are caused to rotate by contact of the shoes on the belt surface. Thus, "Tireless Tillie" goes round and round so that milady may more intelligently select footwear that will wear.

• • •

Roll Your Own Home and See The World

for those nomad-like Americans who are taking to the roads in rolling homes—trailers drawn by their private motor cars. Replete with accommodations for families of two to four, these land yachts offer every convenience in living comforts.

• • •

So That You May Look Better

a glass-topped observation car, the upper part of which is of shatterproof glass and the seats are so made that they may be shifted so that passengers may view the scenery at will, has been placed in service in Germany.

• • •

Glass Houses Are No Longer A Jest

for such structures are being built throughout the nation and particularly is the use of this new building material finding favor in the Southern States. Translucent, but not transparent, the new glass blocks are being used in a new high school at St. Louis, Mo., in a school at Miami Beach, Fla., in a testing laboratory at Houston, Tex., and in model homes in practically every state.

• • •

A Ship That Can Put Some Punch In It

will be the airplane catapult vessel to be used as an air base in the middle of the Atlantic Ocean for the German Lufthansa. Recently launched at Kiel, it has an over-all length of 235 feet, and is equipped with a large crane at the stern to hoist planes on board, while a powerful catapult will speed airplanes on the airmail service after they have landed off the African Coast, where the vessel will serve as a floating airport.

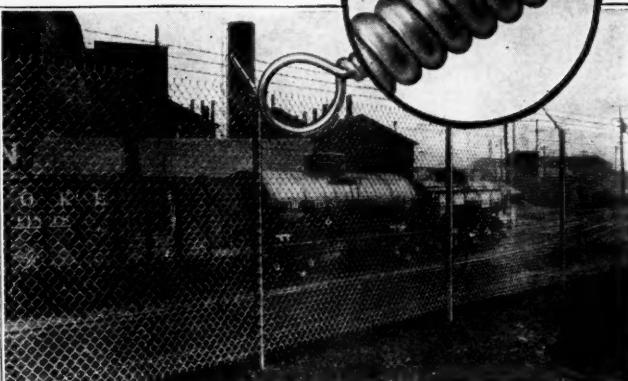
• • •

A "Rubber-Neck" Smoke Stack

is not designed to facilitate viewing the sights, but to keep such promontories of industrial and power plants shiny and bright. Development of a paint that stretches—made of rubber—makes such stacks practicable. Because steel stacks expand and contract at a different rate from paint, ordinary protective coatings crack off and require frequent renewals. With paint now available to provide "a skin as flexible, tight, protective as his hide is to a bull," attractive looking stacks are promised.

NOW—AT NO EXTRA COST CHAIN LINK FENCE THAT CAN

STAND THE WRAP



No weak spots for corrosion to attack—the Bethanized wire can be wrapped around its own diameter without breaking or flaking its corrosion-defying zinc coat.

HERE are the quick facts. Bethanized wire has a coating of chemically pure zinc—free from any vulnerable iron content. The coating is smooth and uniform—not hard and brittle. Twist the wire, bend it double, wrap it around itself—you just can't break the zinc coating and expose the steel core.

Think what that means. An Anchor Fence of Bethanized wire is a fence with no flaws in its pure zinc armor—no cracks or crevices through which corrosion can creep in. Because Bethanized wire can "stand the wrap," these Anchor Fences stand up for many extra years of service—even in industrial atmospheres that are heavy with soot, salt, sulphur and other corroding agents. And now there's no "premium"—no extra cost—for Bethanized wire.

Anchor Fence of Bethanized wire—in types to suit every industrial requirement—are immediately available to you through sales and erecting offices located in every important industrial center in the South. Learn why the new Anchor Fences of BETHANIZED wire will outlast by many years any other chain link fence you can buy. Mail the coupon—and bring yourself up to date on chain link fence.

ANCHOR Fences OF BETHANIZED WIRE

TODAY PLEASE

ANCHOR POST FENCE COMPANY

6622 Eastern Avenue, Baltimore, Maryland

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I will appreciate a copy of your free specification manual giving full details concerning ANCHOR FENCES OF BETHANIZED WIRE for Industrial Property.

NAME

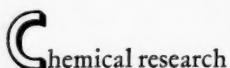
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by Hercules Powder Company provides new and improved materials that benefit many industries. The plastics industry, one of the most important in the country, now uses the following Hercules products: nitrocellulose, cellulose acetate, ethyl cellulose, casein, chemical cotton, and certain solvents and plasticizers. Information about these and other Hercules chemicals can be obtained by mailing the coupon.

○ Some Hercules Products: Celulose Products . . . Rosin, Rosin Derivatives, Spirits of Turpentine, Pine Oil . . . Chemical Cotton . . . Paper Makers Chemicals . . . General Industrial Chemicals . . . Commercial Explosives, Sporting Powders.

○ Some Industries Using Hercules Products: Textile, Paper, Construction, Plastics, Metallurgical, Disinfectant, Insecticide, Paint, Varnish, Lacquer, Soap, Synthetic Fibres, Mining, Quarrying, Foundry, General Chemicals.

Send for Booklet



HERCULES POWDER COMPANY
INCORPORATED

Wilmington, Delaware



Please send booklet describing your products for . . .

Name

Address

Company IN-41-M

INDUSTRIAL NEWS

Branch Office and Warehouse

The Owen Bucket Co., South 56th Street and Grays Avenue, Philadelphia, has opened a branch office and warehouse under the direction of George A. Whitehead, Philadelphia, and will carry a full line of clam shell buckets and repair parts, and will be equipped to render a complete repair and rental service.

Opens Texas Office

To better facilitate handling increased activities, The Marion Steam Shovel Co., Marion, Ohio, is opening an office in San Antonio, Texas, in charge of Paul E. Piersol. Mr. Piersol's headquarters temporarily, will be with the Motor Equipment Corporation, 419 North Flores Street, this arrangement to continue until a permanent location has been established. Motor Equipment Corp. recently took over the distributorship of Marion excavators for Texas and New Mexico which will embrace Marion's Southwestern territory.

Armco Advertising Manager

Harry V. Mercer, associated since 1916 with the American Rolling Mill Co., Middletown, Ohio, has been appointed advertising manager, a newly created position, according to Bennett Chappie, vice president and director of publicity. During 14 of his 20 years' service with Armco, Mr. Mercer has been identified with practically all phases of the company's publicity and advertising.

Two Frick Southern Branch Offices

For use of two of its Southern branch offices, Frick Co., of Waynesboro, Pa., manufacturers of refrigerating and ice-making machinery, air-conditioning equipment, steam engines, boilers, gas tractors, grain threshers, sawmill machinery and other products, has purchased warehouses at Salisbury, N. C., and Columbia S. C. The Salisbury building, a brick structure about 100 by 100 feet, is on East Kerr street, adjoining the Southern Railroad depot and convenient to the Yadkin Hotel. It is being altered to meet the needs of the company. The Columbia building is at 914 Washington street where Frick has been represented for several years.

Treasurer of Ethyl Corp.

John Mehring has been appointed treasurer of Ethyl Gasoline Corp., New York City, according to announcement by E. W. Webb, president. Mr. Mehring, who succeeds the late Arthur E. Mittnacht, has been connected with the Ethyl Corporation since its organization in 1924. The company is owned jointly by General Motors Corporation and Standard Oil Company of New Jersey.

ADSCO Louisiana Representative

The American District Steam Co., North Tonawanda, N. Y., manufacturers of ADSO products for steam distribution, announce the appointment of Mayer Godchaux, 510 Audubon Building, New Orleans, La., as representative for southern Louisiana.

Small Wheebleator Unit

The American Foundry Equipment Co., Mishawaka, Ind., announces a small Wheebleator designed especially for use in foundries, shops and plants having limited production. The new unit is installed in a new size Tum-Blast mill, and while smaller in size, the mill has all the desirable features responsible for the international popularity of the larger Wheebleator Tum-Blast. Centrifugal force replaces compressed air as a driving agent in whipping abrasives onto the work to be cleaned in the Wheebleator.

"Caterpillar" Diesel Auto Patrol

The most recent addition to the Diesel line of Caterpillar Tractor Co., Peoria, Ill., pioneer builder of Diesel tractors and road machinery, is the No. 10 Diesel Auto Patrol, the second road maintenance machine in the company's line with a compression ignition engine. Available with either tandem or single drive, the new unit is powered with a Diesel engine, developing 44 horsepower at a governed speed of 900 rpm. With the single drive, the new machine weighs 13,000 pounds, and with the tandem drive 15,600 pounds.

Sales and Service Branch

Chicago Pneumatic Tool Co., New York City, announces the opening of a new sales and service branch at 2415 Commerce street, Dallas, Tex., in charge of D. G. Reeder, district manager. The Pittsburgh office of the company is now 810 Chamber of Commerce Building.

Power and Mechanical Engineering Exposition

The Twelfth National Exposition of Power and Mechanical Engineering, will be held during the week of November 30 in Grand Central Palace, New York City. Improved business conditions in general are forming a sturdy exposition foundation, it is declared, as evidenced by applications for exhibit space which are said to have come in at such a rate that floor plans have had to be drawn up for three entire floors instead of the usual two. The Exposition will be under the management of the International Exposition Company, Grand Central Palace, with Charles F. Roth in charge.

Distribute Republic Steel

The Jacksonville and Miami warehouses of Cameron and Barkley Co. of Florida will distribute the complete line of Republic Steel Corp., Cleveland, Ohio, according to N. J. Clarke, vice president in charge of Republic sales. Stocks will consist of lap, butt and electric weld steel and copper bearing pipe and Toncan Copper Molybdenum electric weld pipe.

Republic Steel Announcements

Julius Kahn, president of Truscon Steel Corp. since he founded it in 1933, has resigned to become vice president in charge of product development of Republic Steel Corp., Cleveland, Ohio. Forrest H. Ramage, assistant manager of advertising and sales promotion division, has been promoted to Sales Promotion Manager and will work in conjunction with the new Product Development Division. Stanley A. Knisely, formerly manager of the Advertising and Sales Promotion Division, has been named Director of Advertising with direct supervision of all advertising of the Corporation and its subsidiaries. Chester W. Ruth has been named Assistant Director of Advertising.

Blaw-Knox-Irving Bridge Floor

To meet the necessity of quickly repairing the Nine-Mile-Run bridge after the recent Pittsburgh flood floated away the wooden deck, the problem was solved by the use of Blaw-Knox-Irving Bridge floor which effected permanent repair in three weeks and increased the capacity and safety of the bridge. This light weight bridge floor, made by the Blaw-Knox Co., Pittsburgh, Pa., is built of high tensile steel and presents a neat appearance because of the uniformity of shape and spacing of the members. It is built for modern highway specification loadings and tables are available to show what joist spacing should be used for each weight of rear wheel.

Acquires Modern Building

To increase the number of its customers and provide space for larger stocks of power transmission equipment, including chains, gears, speed reducers and V-belt, the George J. Fix Co., Dallas, Tex., recently purchased and occupied a modern business building at 2413-15 Commerce street, Dallas. Engineers in the mechanical transmission of power, the company represents the following manufacturers: Baldwin Duckworth Chain Co., Foote Bros. Gear & Machine Corp., Manhattan Rubber Mfg. Co., Pyott Foundry & Machine Co., Reeves Pulley Company, Shafer Bearing Corp., Morse Chain Company, London Machinery Co., Boston Gear Works.

Fan-Cooled Enclosed DC Motor

Designed for general industrial service and particularly for use in automobile factories, foundries, cement plants, coal tipplers, rock products plants, machine shops, steel mills and other plants where abrasive and metallic dust is present, a new line of fan-cooled totally enclosed direct current motors has been announced by Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pa. The motors range in size from 5 to 75 h. p. for 115, 230 and 550 volts direct current.

Free-Vane Controllers

For automatically controlling temperature, time-temperature, flow, liquid level, pressure, time-pressure, and humidity, a new series of pneumatic-type controllers known as Ampliset Free-Vane Controllers has been introduced by The Bristol Co., Waterbury, Conn. These instruments incorporate certain features of field adjustability which have been added to the time-proven Free Vane System, whereby their sensitivity can be changed by means of a small screw driver to exactly fit the lag peculiarities of the process on which they are used. The Ampliset principle has also been combined with the Metameter, a system of telemetering recently announced by the company for the remote control of steam pressure and gas pressure.

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"MILLERIZED"
SHINGLES & ROOFING
WITH PATENTED
"SEALED" GRANULES

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SOUTHERN MADE FOR SOUTHERN TRADE

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VEN-ITE
THE MONARCH OF FLOORS



FLOORING

with 4 to 7 times the Abrasion Value
of ordinary cement floors

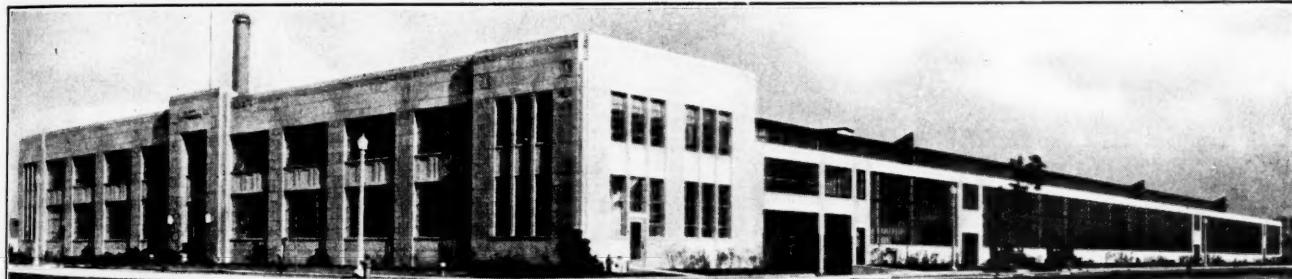
Ven-ite is a dense, heavy duty floor which suspends oils, greases and stains preventing them from penetrating into the body of the floor. Ven-ite Floors cannot and will not dust and are especially adapted for a Warehouse because they are non-skid and will withstand heavier loads because they contain aggregates that will not crush or roll out under the most severe traffic conditions.

Before you buy floors of any kind, investigate "Ven-ite"—the better, denser, stronger cement flooring.

Ven-ite Floors—designed to meet specific conditions—will withstand the heaviest industrial trucking. They are waterproof, dustless, highly resistant to most acids, unaffected by oil, grease, atmospheric conditions.

Ven-ite floors show the lowest per square foot per year cost of any floor. Let us send details.

VEN-ITE COMPANY, INC.
252 South Broad Street, Philadelphia, Pa.



Genasco Trinidad Bonded 10-Year Built-up Roof, Pepsodent Company Plant, Chicago

FOR a really fine roof on a really fine industrial plant the Pepsodent people selected a Genasco Standard Trinidad Built-up Roof.

Genasco Standard Trinidad Built-up Roofing is constructed with alternate layers of Genasco All-Rag Felts and Trinidad Lake Roofing Asphalt.

Trinidad Lake Roofing Asphalt, the waterproofing factor of a Genasco Standard Trinidad Built-up Roof, has been used successfully for almost a half of a century. This material is stable and resistant to roofing's worst enemy—the ultra-violet rays of the sun. That's why Genasco gives such long service.

An interesting book—"For Your Roof"—will be sent if you return the coupon below.

Architect: F. C. Foltz, Chicago
Roofing Contractors: Knauf & Weber Roofing Co., Chicago
General Contractors: Clearing Industrial Districts, Inc., Chicago



It's the top

Genasco

Reg. U. S. Pat. Off.

STANDARD TRINIDAD
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Roof security is *felt* with Trinidad



THE BARBER ASPHALT COMPANY
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MR6

Please send me a copy of your illustrated book "For Your Roof" which carries illustrations of many prominent buildings in all parts of the country protected with Genasco Standard Trinidad Built-up Roofing.

Name

Address

To Attain A Great Age A Firm Must Retain Its Youth

First Wire Rope Manufacturing Concern
West of Allegheny Mountains Celebrates
Sixtieth Anniversary

BRODERICK & BASCOM ROPE CO., pioneer wire rope manufacturers of the Middle West and Pacific Northwest, with general offices at St. Louis, Mo., last month celebrated its sixtieth anniversary.

Incidentally, "The Yellow Strand," in which interesting facts are published monthly about the development of the company and the use of its products in a wide diversity of projects, has the distinction of being the first house organ published by a wire rope manufacturer in the United States. The first issue appeared in October, 1904. It has been issued continuously over a period of almost 32 years.

In "How to be Youthful at 60," the

leading editorial in the Anniversary Number of "The Yellow Strand," it is pointed out that whereas there are about 258,000 manufacturers in the United States, not one in a hundred lives 60 years, and that the average life of all manufacturing firms is seven years.

On the basis of mortality figures for manufacturing enterprises, the Broderick & Bascom Rope Co. is very old, but a firm has to stay young to grow old and at 60 the company prides itself on being "lusty, vigorous, aggressive and youthful."

The firm's engineers have done more original research work during the past 10 years than during any period in the company's history, as a result of which B & B salesmen make their recommendations on a far more scientific basis than was possible a decade ago.

Indicative of the fact that "youthful minds are open minds," the B & B organization was among the first to adopt the preforming process for wire rope, and subsequently named their preformed rope "Flex-Set" to indicate its flexibility.

The name "Flex-Set" may be fairly

said to symbolize B & B's attitude toward newer and more progressive methods of rope-making, in that the company's ways are never so "set" that they cannot be "flexed."

The first modest "rope works" of the company began operation in St. Louis in 1876. Its second factory, built in 1883, included the first wire rope-making machinery between the Allegheny and Sierra Nevada mountains. Factory No. 2 was outgrown by 1892, and in the new plant, with new machinery designed by the company's superintendent, the firm dared to depart from the conventional. By 1907, St. Louis proved too remote a point from which to supply the growing needs of the West Coast, hence a factory was established at Seattle.

The Seattle factory has since been expanded, its products being shipped as far north as Alaska, east to the Rockies, south to Mexico, west to Asia and islands of the Pacific.

The St. Louis factory, a million-dollar plant, built in 1924, is devoted exclusively to the production of wire rope, an ever-growing percentage of which is "Flex-Set" preformed rope.

Florida Beach Property For Sale

*Ocean frontage
on Anastasia Island
near St. Augustine*

*Town property
at Flagler Beach
Flagler County*

*Investigate the possibilities of Beach
property for development
in Florida*

Model Land Company
Flagler System
St. Augustine, Florida

4 KLOEPPEL Hotels in FLORIDA JACKSONVILLE

The GEORGE WASHINGTON



300 Rooms with Bath and Shower
The Wonder Hotel of the South. Radio and every known facility for first class operation.
GARAGE in direct connection with lobby.
RATES.....from \$3.00

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300 Rooms with Bath and Shower
Famed for its hospitality and favored alike by winter visitors and Commercial Travelers. Radio
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The FLAGLER



125 Rooms...Baths
You'll be pleased with its convenience, comfort and service. Moderate prices prevail.
GARAGE directly connected.
RATES.....from \$1.50

WEST PALM BEACH



The GEORGE WASHINGTON
200 Rooms with Baths and Showers
Open all the year. Radio and every modern convenience and service for summer and winter comfort.
RATES from \$3.00 GARAGE service.
★ Reasonable Rates Posted in Every Room

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JOHN T. DAILY, Secretary
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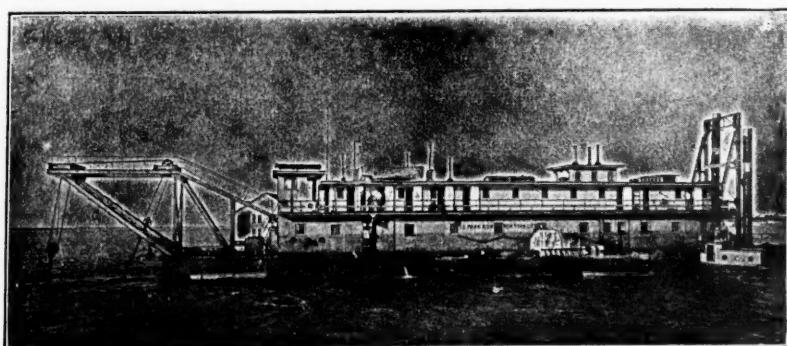
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J. N. SEIFERT, Assistant Treasurer
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We are especially equipped to execute all kinds of dredging,
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Correspondence invited from corporate
and private interests everywhere.

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ATLANTIC GULF AND PACIFIC CO.

NEW YORK: 15 Park Row

HOUSTON, TEXAS: Scanlan Building

Resuming Appalachian Coal Agency Marketing Activities, Suspended By Guffey Act, Revived Represents 250 Mines Producing Annually 85,000,000 Tons

(Special to MANUFACTURERS RECORD)

CINCINNATI, O.—

Appalachian Coals, Inc., will soon function again as marketing agency for the high volatile producers of Kentucky, Tennessee, Virginia and West Virginia. Meeting in all-day session here on May 22, the operators voted unanimously to carry on sales work through the Cincinnati agency, making use of the formula held valid by the U. S. Supreme Court in 1933. Sufficient tonnage was either pledged or signed to permit immediate resumption of market activities.

Prior to this stockholders' meeting, R. E. Howe, secretary-treasurer and general manager, said:

"The recent decision of the Supreme Court, invalidating the national coal stabilization act, again places the industry in a position to do what was recommended more than 10 years ago by the U. S. Coal Commission. The Commission then realized that the largest opportunity and the largest responsibility for putting the coal industry in order lie within the industry itself . . . not through Government coer-

cion, but through enlightened self-interest of producers and consumers."

"The coal industry can reform itself from within. When the Supreme Court of the United States rendered a decision on March 13, 1933, upholding the validity of Appalachian Coals, Incorporated, it gave the coal industry a right to reform itself within its own ranks. The May 18 decision of the same Court re-establishes that right."

More than 100 Southern operators attended the A. C. I. stockholders meeting. They approved a resolution of the board, naming a management committee to act in an advisory capacity and cooperate with Mr. Howe. W. J. Cunningham, president Crummies Creek Coal Co., Inc., Crummies, Ky.; John A. Howe, executive vice president, Traux, Traux Coal Co., Chicago, Ill., and L. E. Wood, president, Crystal Block Coal & Coke Co., Huntington, W. Va., were chosen to serve on this committee.

Among those who took important part in the May 22 meeting included:

John A. Howe, now a member of the management committee;
J. D. Francis, president, Island Creek Coal Co., Huntington, W. Va.;

Sen. J. N. Camden, president, Kentucky River Coal Corp., Lexington, Ky.;
E. C. Mahan, president, Southern Coal & Coke Co., Knoxville, Tenn.;
C. C. Dickinson, president, Dickinson Fuel Co., Charleston, W. Va.;
James Bonnyman, president, Blue Diamond Coal Co., Cincinnati, O.;
Arthur Downey, general manager, Monitor Coal & Coke Co., Wilkinson, W. Va., and
E. L. Greever, counsel, Appalachian Coals, Inc.

Mr. Greever urged the Southern high volatile operators to "unite, wholeheartedly and frankly," to bring about stabilization in the coal industry. "Regardless of the merits or demerits of the invalidated Guffey Act," said Mr. Greever, "the Supreme Court has hit a body blow to Government regulation of industry . . . the Court has said that Congress has no power, under the general welfare clause, to regulate business."

"The marketing agency plan, as exemplified by Appalachian Coals, Inc., offers the Southern operator a systematic, regular method of pricing and selling coal," continued Mr. Greever. "Standing alone, the operator will be doing business in the dark."

Prior to enactment of the so-called Guffey Act, Appalachian Coals, Inc., was marketing 147 producers' coals from some 250 mines, having an annual capacity of about 85,000,000 tons. The agency is credited with having had an important stabilizing effect throughout the Southern fields before, during and after NRA.



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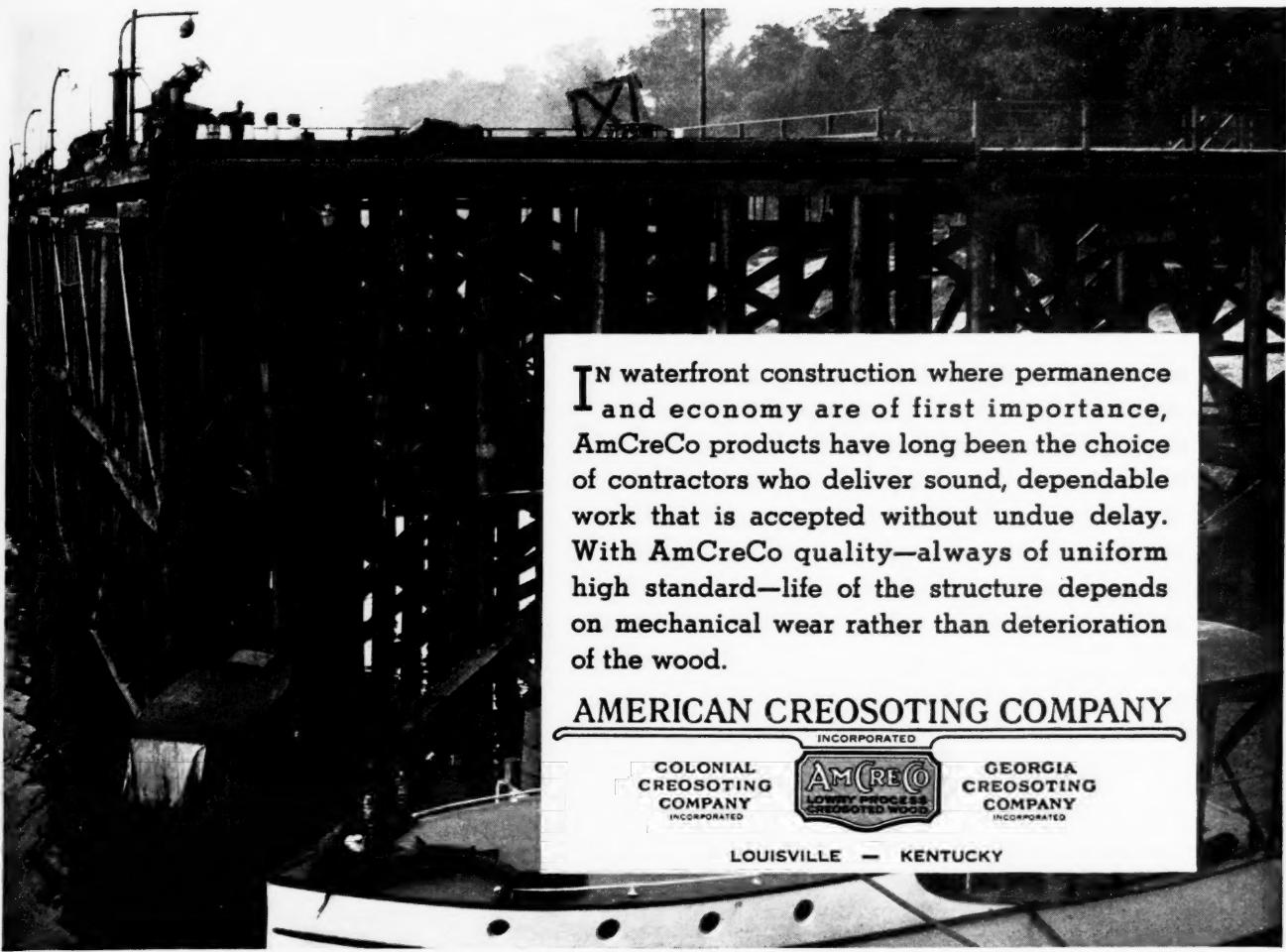
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The plant is equipped with a specially-designed machine, which receives the molten slag and converts it from the original state into a light, cellular material. During the process, water is introduced into the machine and the material is thus cooled sufficiently to permit of its discharge onto a special rubber conveyor belt which delivers it to a

primary crusher at the top of the mill. The crusher reduces the large lumps to about two inches and the material then passes through a large double roll crusher for reduction to the desired size, and on to vibrating screens which deliver the sized and graded product direct into cars.

The process and machinery were developed in Germany, where, as well as in many European countries, the aggregate is widely used. It was introduced here about 10 years ago. Superock is the introduction of the material to the South.

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cells are described as very hard and impervious, in consequence of which the absorption is low. The same feature is said to account for the high-sound absorbing qualities and for the low-heat conductivity which result from the use of the aggregate. In the same way, the weight of the resulting concrete is 25 to 50 per cent less than concrete made with heavy aggregate.

Types of concrete made with the material, say the producers, can be cut, bored and sawed with carpenters' tools and nails, screws, lag screws, etc., and may be used without the necessity of drilling and plugging the concrete. Without unduly sacrificing light-weight and other features, it is said it may be used in combination with other aggregates, and local sand, either natural or artificial.

C. S. Robinson is president of the Superock Co., with G. O. Greene, secretary and treasurer. Employment is provided for 40 men. The daily output is approximately 800 tons.

National Power Conference

The name of the Midwest Power Engineering Conference was recently changed to that of National Power Conference, with offices at 308 West Washington Street, Chicago. Plans have been made to broaden the scope of the organization's activities, and to this end more than 60 engineering bodies have been invited to become affiliated members of the Conference. These societies extend from Maine to California and have a membership of well over 50,000. G. E. Pfisterer is the executive secretary.

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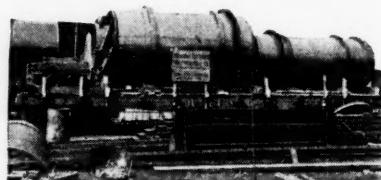
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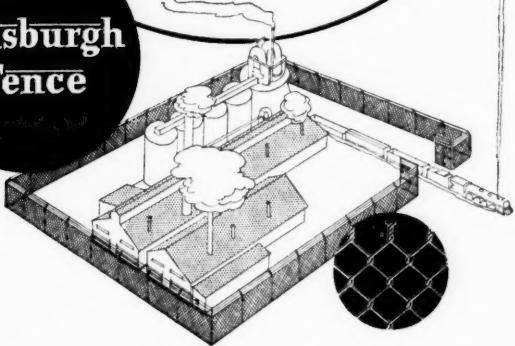


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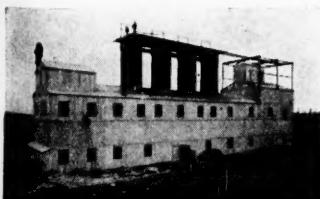
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Commonwealth and Southern Corp. Annual Report Shows High Average Electrical Use

IN the annual report of President Wendell L. Willkie to the stockholders of the Commonwealth & Southern Corporation, it is shown that consolidated gross earnings for 1935 increased 6.35 per cent over 1934, due principally to substantial recovery in electric sales, and that "the average annual use per residential customer in the system increased 14.21 per cent over 1934. The average annual use per customer is now 820 kilowatt-hours, compared to a national average of 673 kilowatt-hours."

President Willkie draws attention to the fact that electric rates charged in the area in which the TVA is operating and in which the principal Southern plants of the Commonwealth & Southern have been located for years, are made possible only by additional taxes paid by people in all parts of the country. He says — "whenever a citizen of Tupelo, Mississippi, turns on the electric switch, everybody in the United States helps pay his electric bill. * * * Our operating companies in that area could lower their rates at least 25 per cent below the TVA rates if they were given the same gifts from the Federal Treasury as are given to the TVA."

The Commonwealth & Southern Corporation operates in eleven states, viz.: South Carolina, Tennessee, Georgia, Alabama, Mississippi, Florida, Illinois, Michigan, Ohio, Indiana and Pennsylvania. Its policy has been a consistent one in putting into effect from time to time progressively declining promotional rates.

During the past year and a half savings were effected amounting to more than \$1,300,000 per annum as a result of refunding operations. Bonds of the Northern companies of the Corporation were sold with interest rates ranging from 4 1/4 to 3 1/2 per cent, and replaced bonds bearing an average interest rate of 4.985 per cent.

President Willkie says: "The presence of government competition has created such market uncertainties that the preferred stocks of our Southern companies are selling at 30 to 40 points below par, and it is impossible for them to refund their bonds and preferred stocks, or to publicly finance their construction requirements. If the four principal Southern operating companies had been able to refund on the same basis as the Northern companies, savings of over \$5,000,000 a year would accrue to them."

The report calls attention to the fact that the utility industry "could employ tens of thousands of additional men in construction and other activities if it were free from the unreasonable provisions of the Public Utility Act of 1935, the threat of subsidized Federal competition and the constant assault of Federal commissions and administrators."

A Maker of Industrial History

NOT often is it given to a man to make one important contribution to industrial progress, but when one man is responsible for forging several links in the industrial advance of the nation that brought revolutionary changes in methods and practices, his place in industrial history is assured.

Erskine Hazard, founder of the Hazard Wire Rope Company, among other accomplishments, is credited with being the first man to use anthracite coal successfully in iron smelting, having built America's first

wire rope machine, and the first wire rope suspension bridge.

While in his early 20's, Hazard and Captain Josiah White started a wire mill in Pennsylvania. They made nails and wire until the War of 1812, when the entire production facilities were turned to the casting of cannon balls. It was during 1814, while the Atlantic seaboard cities were still feeling the pinch of the coal shortage occasioned by the War, that Erskine Hazard bought two cartloads of anthracite (which cost \$1 per bushel) for use in his pig iron furnace, and after repeated failures discovered how to successfully burn it. The result of this discovery of a simple fact in combustion engineering, led Hazard to purchase the then inactive Lehigh Coal Mining Co. and go into the production of anthracite coal.

The town of Mauch Chunk, Pa., was established by Hazard and White who erected a blast furnace there in which they smelted iron by the use of anthracite coal and where later their wire rope mill was built in order to be close to the fuel supply.

One year after the discovery of how to burn anthracite in an iron furnace, Hazard and White designed and constructed the first wire rope suspension bridge in the world. It spanned the Schuylkill River near Philadelphia. The length of the span was 410 feet with a sag of 33 feet, and intended to support not more than six or eight people at a time. The total weight of the bridge materials was a little more than 2 tons, with 1314 pounds of wire rope.

Among other accomplishments, Hazard and his partner surveyed the Lehigh River from Stoddartsville to Easton with a view to determining the possibility of making it navigable, and operated the Mauch Chunk Switchboard Gravity Railroad, 9 miles long, started in January, 1827, and said to have been the second railroad in the Nation.

The Hazard Wire Rope Works were in operation in Mauch Chunk in 1846, the ropes being laid by hand on a "rope walk". A few years later Erskine Hazard and his son Fischer designed and built America's first wire rope machine.

Erskine Hazard was one of the pioneers who established the iron business in the Lehigh Valley of Pennsylvania, and was one of our early American "Fathers of Industry." While their problems at that early day were entirely different from the problems of mass production of this age they were in no way less simple.

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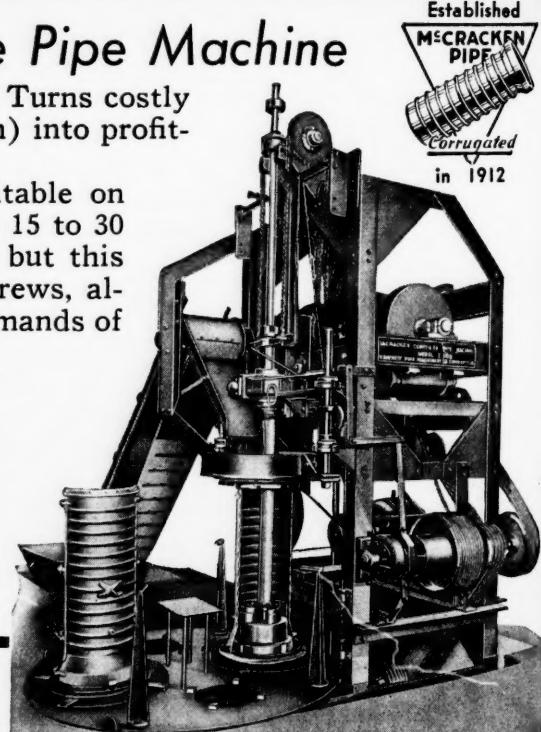
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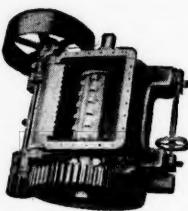
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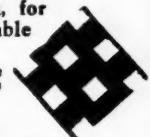
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Immediate Delivery - - - - -
Canvas in every weight for every use.

ATLANTA TENT & AWNING COMPANY
Box 974 ATLANTA, GA.

Forest Management Pays Dividends

(Continued from page 29)

been burned. This is because fire fighting, delayed not more than thirty or forty minutes following an outbreak, is most effective.

The land is mainly flat and covered with ponds and swamps and what are known as hills, the latter being a few inches normally above the water level of the ponds and swamps.

Before the introduction of fire protection the so-called hills grew only longleaf pine with an occasional slash pine near swamp edge. In fact, it was generally considered that slash pine grew only where "it could have its feet wet". After only a few years during which the forest was kept free from fire, the theory that slash pine would not grow on hill land was exploded. Annual burning destroyed slash pine on the hills before it even got a start, and a large percentage of young longleaf seedlings went the same way.

Today thousands of acres are covered with dense stands of slash pine so thick that it is necessary, in our thinning operations, to cut out anywhere from several hundred to several thousand trees per acre to reduce it to a quantity considered best for optimum growing conditions. Compare this with the previous statement of 20 to 30 trees per acre.

Fire in the forest destroys more than just young seedlings. Often large trees are so badly burned that they die from the effects of fire. In this region where naval stores is of primary importance, the trees even after being worked out for turpentine have a scarred surface 9 to

12 inches wide and from 6 to 8 feet in height, covered by a thin layer of crude gum which is highly inflammable.

When the grass burns, the scarred faces are ignited. Normally the faces burn only a short time and the trees are not killed. However, with the removal of the protective coating of gum the tree is open to insect attacks, and various types of borers riddle the exposed sections. These hundreds of holes facilitate the entrance of moisture, causing rot which often extends upward 5 to 8 feet above the turpentine face, thereby making the best portion of the tree a loss.

If methods similar to those employed in this undertaking were adopted in the states where the pine tree claims its home there would be added to the wealth of the South a vast increase.

Maple Floors Widely Used In Factories

Long Wearing Characteristics, Ease With Which It Is Kept Clean, Makes Maple Flooring Popular With Industrial Plant Owners of the South

FINISHED flooring for factory buildings of maple is growing in favor. Being tough-fibred, tight-grained, it resists wear, retains its original smoothness, and creates no dust that might injure machinery.

This type of flooring, a survey shows,

has long life under heavy rolling trucks and provides, says one engineer, "anywhere from 20 years up in the trucking alleys, dependent upon the amount of traffic."

Good grades of maple flooring are in general use in textile mills where hard service is encountered, its selection being based too on the inherent qualities of maple, which produce not only a good appearance, but a very satisfactory wearing service, as well as being resilient. One engineering firm reports some floors in mills "that have been down from 20 to 30 years are still in perfect shape and aside from a certain amount of wear are still giving good service."

To seal the grains of the wood against the infiltration of oil from machinery and water used in scrubbing, and thus produce practically an impervious surface, maple flooring for factory use normally is given a treatment of two coats of hot linseed oil or some other type of filler.

Several makes of finishes such as Old English Floor Oil, Okene Floor Oil, Lignophol, and Minwax are used for treating maple flooring. These finishes are said to "compare favorably with linseed oil," and one engineer declares that "as a matter of fact some of the proprietary brands of floor finish are superior to linseed oil, but due to their cost, a lot of owners continue to use the hot linseed oil."



The strength of the sturdy oak is not all above the ground. The oak depends upon its roots for life and growth. So with Pomona Pumps. It's not what you see above the ground that alone makes Pomona a great pump. Of course, it's recognized that there isn't a sturdier, better engineered pump head built, but that's only half of it. It's the assembly of shafting, bearings, impellers and bowls that are hidden from passing gaze that are Pomona's roots. Here lies the secret of Pomona's superior performance, long life and trouble-free operation. The high quality material, the meticulous machining, the precision fittings found in the bowl assembly of Pomona Pumps is seldom equalled,—has never been excelled. You are paying for Pomona performance. Be sure your pump is Pomona,—then you will get it.

Write for your copy of Pomona's new engineering circular on hydraulic laboratory pump testing.

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That Gardner-Denver
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● Seventy-seven years of manufacturing experience go to work for you when you put a Gardner-Denver horizontal compressor on the job. Gardner-Denver keeps a step ahead in design — to give Gardner-Denver compressor owners the lead in keeping efficiency high and operating costs low. Prove it in YOUR plant!

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GARDNER-DENVER COMPANY
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Houston, Texas; Dallas, Texas



**MYERS
CONDENSATE UNITS**

**Modernly Styled
for Efficiency
and Economy**



FIG. 2913

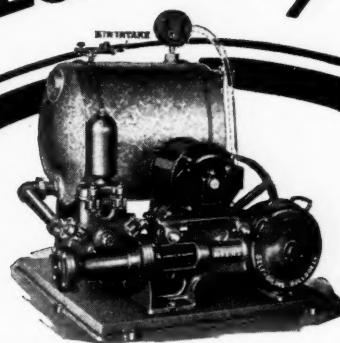


FIG. 2915

On the basis of demand we have already experienced for Myers Condensate Units, the opportunities for new business through dealers and distributors go far beyond our expectations.

Modernly styled and furnished only as complete units, their service range includes factories, laundries, greenhouses, dairies, public and private buildings and institutions, and many similar places where it is necessary to provide dependable units to return condensate to boilers.

May we suggest your writing or wiring our Engineering Department for complete information. Add this new Myers Line to your pump sales activities as another avenue to business and profits.



FIG. 2916

FIG. 2914

THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO

PUMPS-WATER SYSTEMS-HAY TOOLS-DOOR HANGERS

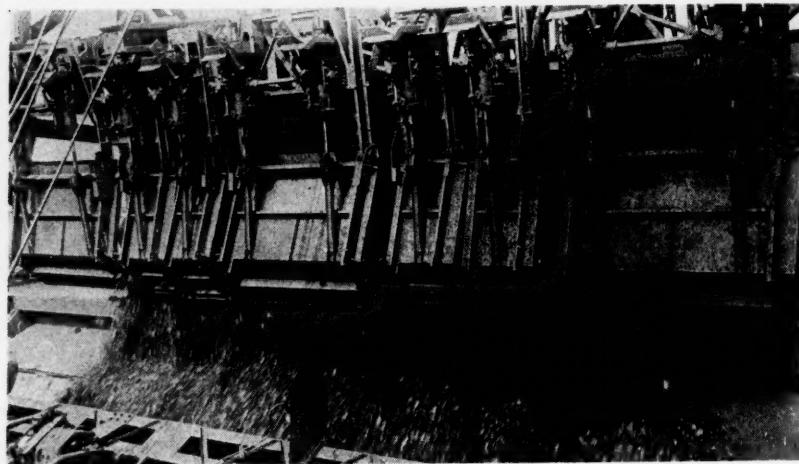
Wellman Coal Hood

Norfolk & Western's New Coal Pier First to Incorporate Device on Atlantic Seaboard

THE lifting car dumper of the Norfolk and Western Railway's new coal pier at Lambert Point, Virginia, illustrated and described in the May MANUFACTURERS RECORD is equipped with a Wellman Patented Coal Hood, the first on the Atlantic seaboard to be so equipped. This coal hood eliminates the breakage of coal caused by the avalanche of material from road cars to the car-dumper pan when the cradle

is inverted to discharge the contents of the car.

It consists of a series of seven sections of covers positioned over the loaded car standing on the cradle of the dumper, so arranged that as the cradle is hoisted these covers close the top of the car and retain the coal until the cradle has rotated to about 100 degrees, when the coal is released and allowed to discharge into the pan under control. The action



obtained is similar to the discharge from a bin having an outlet equivalent to the length of the hood about 39 feet 6 inches, the coal entering the pan without degradation.

The outline of the hood is such that it does not interfere with the hand brake-wheels of standard cars, and it is arranged in multiple sections to avoid interference with the operation of the car clamp beams which are not in any way affected by the hood operation. These sections are carried by three sliding frames, which, in turn, are mounted to move vertically between four columns attached to the rear of the cradle.

The hood sections, or gates, are controlled by hydraulic cylinders attached to the sliding frames.

After the coal has passed from the car to the pan, the cradle is revolved back to its original position in the customary way and during this reverse rotation the hood gates resume their initial position, the by-pass valve closes and the hood is in position to receive another car.

Reo Offers New Trucks

Reo Motor Car Co., Lansing, Mich., announces a complete new line of 3 to 5 and 4 to 6 ton heavy duty trucks, with base chassis prices ranging from \$1,745 and up for the 3-5 ton models and \$2,775 for the 4-6 ton units. Six models, gracefully streamlined and smartly styled, are offered in the 3-5 ton class and three in the 4-6 ton class. Power is supplied for units in the former class by a six-cylinder Gold Crown engine and for the latter class by a heavy-duty six-cylinder engine of the 7-bearing type.

AUTOMATIC STARTING ELIMINATES ATTENDANT

This set operates automatically on failure of electric current, supplying the power required during all emergency periods.

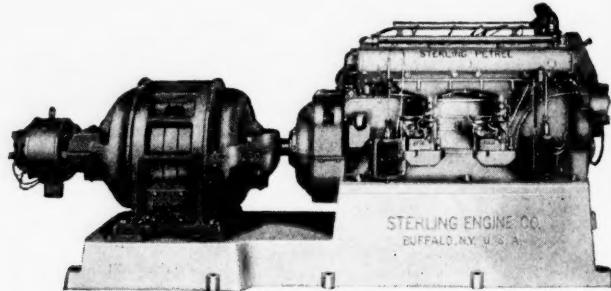
The automatic feature reduces the cost of maintenance and is faster and more dependable than manual starting.

Sterling
High
Duty



Gas—Gasoline—
Diesel Oil Engines

Internal
Combustion
Engines



The Highlandtown Pumping Station, Baltimore, Md., employs a Sterling Petrel 6 cylinder 115 H.P. engine driving a 60 K.W. 240 volt General Electric generator, 1200 R.P.M.

Automatic equipment defrays its cost in one year of operation.

STERLING ENGINE COMPANY

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Dept. C-7

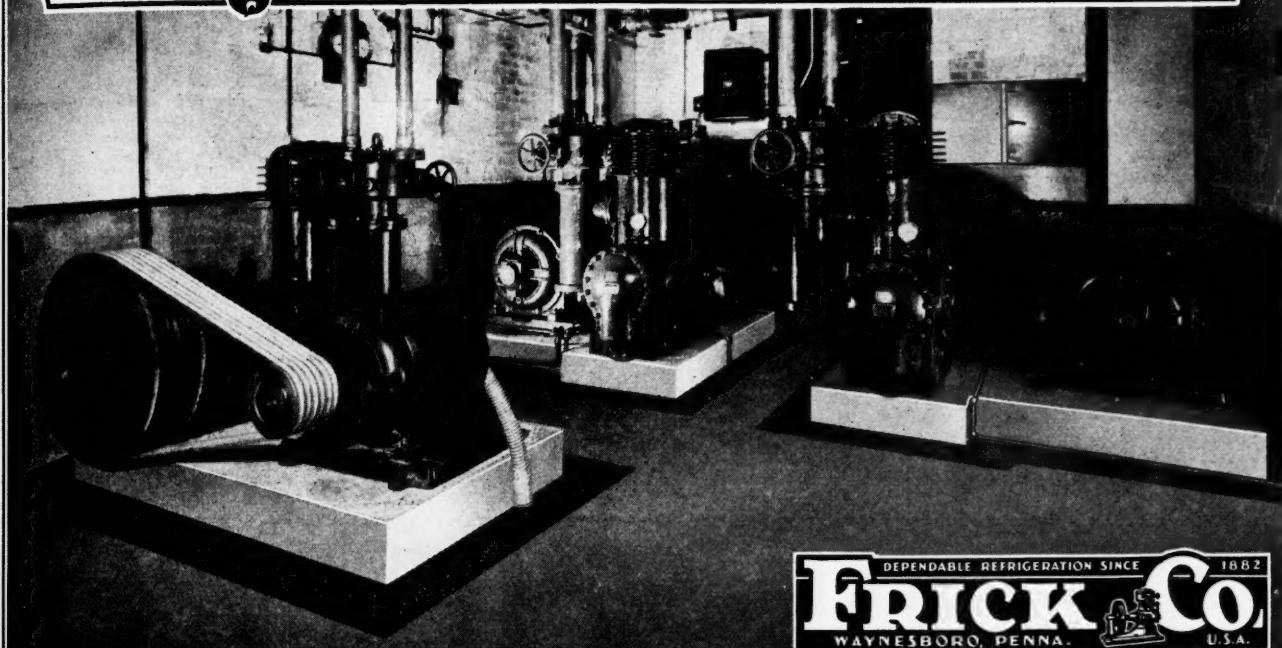
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Cools more than 50,000 cubic feet of air per minute for air conditioning the magnificent 10-story office building of the National Reserve Life Insurance Co. at Topeka, Kan. The three Frick Freon Compressors illustrated carry the 131-ton refrigerating load.

Refrigeration

Let the nearest Frick Sales-Engineer give you the full facts and figures on Frick Refrigeration, whether for air conditioning, cooling drinking water, food service, freezing ice, process work, etc. Write today.



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1905 *Strand* **1936**

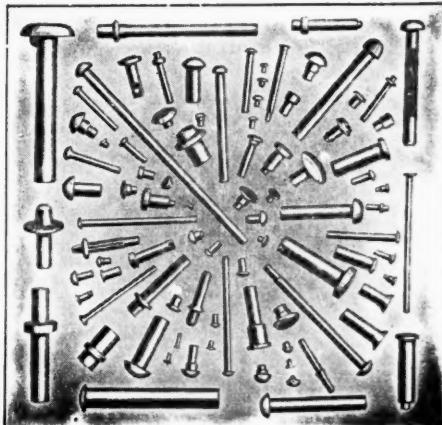
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YOU CAN'T GO WRONG WITH THE STRAND

Type M 5 THEY MAKE GOOD
MANY TYPES AND SIZES
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Interchangeable Bolts and Nuts (Promco Brand) Special Screws and quality Rivets to order.

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Coffee Shop Tap Room

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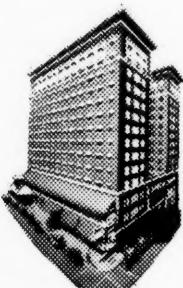
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25 Gen. Elec.	H 50	Gen. Elec.	H
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312 C. W.—Ames Uniflow	N.Y.	
180 G. E.—Chuse Uniflow	Miss.	
150 Wghse.—Eric Ball 4 v.	Texas	
150 G. E.—Ames Uniflow	Ga.	
150 G. E.—Eric Ball 4 v.	Mass.	
125 G. E.—Non-Condens. Turbine	Mich.	
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Boiler: 300 HP B. & W. Cross Drum 200 lbs. (NEW)—N. Y.		
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200 G.E. Si. Rg. 900	V. D.C. Gen. Conn. to 433 H.P. Synch. motor 4600/2300 V. 3 Ph. 60 cy. 1200
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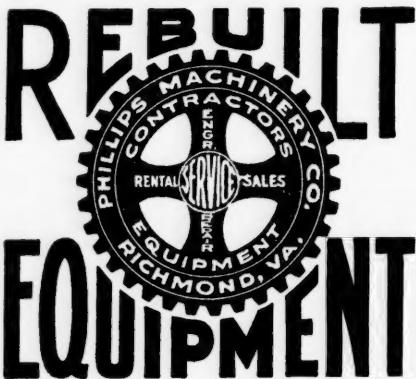
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600 HP 500 KVA DeLaVergne Diesel Set.
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MILLING MACHINES—No. 3B Kearney & Trecker Univ. S.P. drive, table 55"x15"; No. 1½ Cincinnati Univ. cone drive, table 36"x9"; No. 1½ Rockford plain, cone drive, table 9"x38½".

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Principal sub-contractors and firms that supplied materials for the new building are as follows:

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The plant is equipped at the outset with 20 looms, which, together with supplementary machinery, were supplied by the Kintzing Loom Manufacturing Co., of Hanover, Pa.

Arthur G. Corkery is president of the company, which was incorporated early in the year by a group of New York, Savannah and Atlanta interests. The board of directors includes Robert M. Nelson, of New York; Clark Howell, Jr., of Atlanta; Spencer E. Connerat, Ormond Hunter, and Arthur G. Corkery, all of Savannah.

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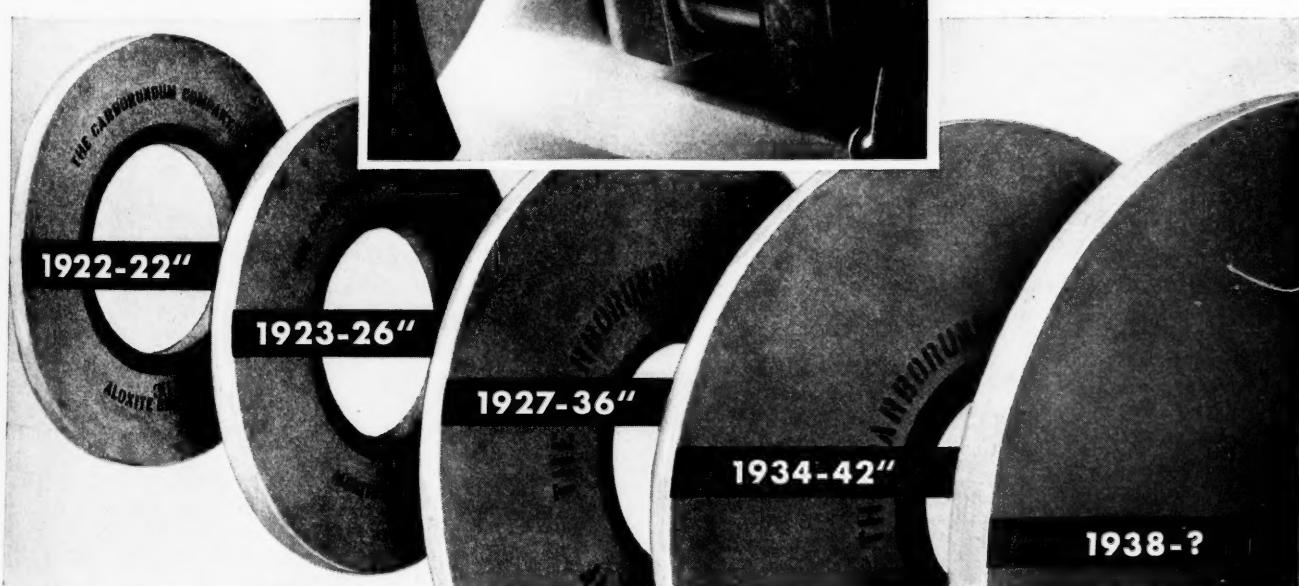
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